2003 Annual Report

East Hennepin Avenue Site

Prepared for
General Mills, Inc.

February 2004

BARR

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1.0 Introduction

This report summarizes the results from annual monitoring and remedial action operations conducted at the East Hennepin Avenue Site (Figure 1) during 2003. The activities completed in 2003 were generally consistent with those that have been conducted since 1985. The goals of the remedial action are to minimize the further migration of volatile organic compounds (VOCs), in particular, trichloroethylene (TCE), released from the former disposal area, and to improve the quality of the groundwater in the glacial drift and Platteville formation.

1.1 Site Operation and Brief Geological Overview

The current system consists of seven pump-out wells, a water treatment facility, and monitoring well networks in four aquifers. The pump-out wells are designed to control the movement of the plumes in the surficial glacial drift and in the underlying Carimona and Magnolia Members of the Platteville Formation. Four pump-out wells remove affected groundwater from the immediate vicinity of the site, which is treated by air stripping and discharged to the Minneapolis storm sewer system. Three pump-out wells remove less-affected groundwater downgradient of the site, which is discharged directly to the City storm sewer system and undergoes passive air stripping as the water flows to the Mississippi River. Annual and quarterly activities were completed in 2003 to monitor the effectiveness of the remediation systems.

Figure 2 shows a generalized geologic section of the site. There are about 50 feet of unconsolidated sediment underlying the site. As much as 10 feet of fill and peat are present near the surface. Underlying that is about 30 to 50 feet of sand alluvium, and 0 to 10 feet of clay till at the base. The uppermost bedrock is either the Decorah Shale (0 to 5 feet thick) or the Carimona member of the Platteville Limestone.

Groundwater generally flows southwest toward the Mississippi River. The water table occurs at about Elevation 830 to 840 feet MSL beneath the site, and the river is at about Elevation 725 feet MSL. Typically, there are downward gradients from the glacial drift aquifer to the Platteville Limestone, and from the Platteville Limestone to the underlying St. Peter Sandstone (the surface of the nearby Mississippi River occurs at about the middle of the St. Peter Sandstone). Because of this downward gradient, the groundwater in the Platteville Limestone beneath the site flows toward the northwest.

1.2 Site History

From about 1930 until about 1977, General Mills operated a technical center and research laboratories at 2010 East Hennepin Avenue in Minneapolis, Minnesota. Food research was conducted at this property until 1947, when General Mills commenced chemical research in addition to the food research. Beginning in about 1947, laboratory solvents from the chemical research operations were reportedly disposed of in a soil absorption pit located in the southeast portion property. The pit consisted of three 55-gallon drums that were perforated, stacked one on top of the another, and buried with the bottom of the deepest drum about 10 to 12 feet below the ground surface. The pit was used until approximately 1962.

On August 31, 1977, Henkel Corporation purchased the property at 2010 East Hennepin Avenue from General Mills. The drums and pipe that made up the disposal site were reportedly excavated in 1981, and the bottom of the excavation was reportedly about 12 feet deep. The action of removing and replacing the soil likely caused volatilization of much of the VOCs that were present prior to the excavation, and homogenization of those that remained afterward. In addition, some offsite soil was used in backfilling.

Site characterization work began in 1981. On October 23, 1984, a Response Order by Consent between the Minnesota Pollution Control Agency (MPCA) and General Mills, Inc., was executed by the MPCA Board, and this Response Order is the basis for subsequent and on-going remedial activities. The site is listed on the National Priorities List (USEPA ID Number MND051441731), but no Record of Decision was ever issued. In 1985, operation of the remediation systems began.

In September 1994 and 1999, the MPCA issued Five-Year Reviews of the site. The 1999 review generally affirmed the 1984 Response Order, and led to a request for additional minor site investigation.

In 2001, General Mills completed an investigation of the shallow soils in the area of the former disposal site. The results of the study led to a recommendation of no further action. The MPCA approved the letter report (September 28, 2001 letter from Mark Rys to Larry Deeney) with a request for reporting of additional monitoring parameters (benzene, ethylbenzene, toluene and xylene).

1.3 2003 Operations

The pump-out and treatment systems operated within acceptable limits in 2003. 2003 monitoring results indicate that the pump-out systems are effectively preventing further lateral migration of VOCs in the glacial drift and Platteville. No complete risk pathways exist at the Site. Water quality data from the glacial drift, Platteville, St. Peter, and Prairie du Chien/Jordan are consistent with historic results.

The 2003 monitoring and remediation were carried out in response to the requirements of:

- Part II of Exhibit A to the October 23, 1984, Response Order by Consent between General Mills, Inc., and the MPCA;
- the January 1985 groundwater pump-out system plan, East Hennepin Avenue Site;
- Minnesota Department of Natural Resources (MDNR) water appropriation permits (85-6144 and 85-6145);
- NPDES Permit MN 0056022 (renewed on May 15, 2000);
- City of Minneapolis site registration;
- the 2000-2005 Operations and Monitoring Plan (Appendix A);
- agreements made between GMI and the MPCA.

2.0 Quality Assurance

This section presents a review of the field sampling procedures and laboratory performance throughout 2003 as measured by the quality control samples. The monitoring program is described in Appendix A. Appendix B contains the field sampling report and laboratory report from the December monitoring event (previous data were presented in quarterly NPDES reports). The results of the analyses of the QC samples are in tables in Appendix C. The analytical data were evaluated according to the procedures outlined in the Barr Engineering Company Standard Operating Procedures for Routine Level Organic Data Validation (Barr 1999) derived from the U.S. EPA Functional Guidelines for Organic Data Review (1999).

Staff from Barr Engineering Company collected the field data and the samples submitted for laboratory analysis. Tri-Matrix Laboratories in Grand Rapids, Michigan, analyzed the samples using U.S. EPA approved methodologies.

The quality control review included reviewing the holding times, methods, trip samples and field blank samples, surrogate spike sample recoveries, matrix and matrix spike duplicate sample data (when applicable/relevant), laboratory control samples, and masked (or blind) duplicate sample data. Matrix spike (MS) and matrix spike duplicate (MSD) samples or laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) data and masked duplicate sample data are used to measure laboratory based precision and accuracy. The accuracy was determined by the percent recovery of the spiked compounds, and the precision was determined by calculating the Relative Percent Difference (RPD) for the duplicate data pairs where both samples had detectable concentrations.

Field, trip and laboratory blank samples were collected and analyzed to monitor potential interference from incomplete decontamination of field equipment, sample transport contamination, and laboratory procedures. Following EPA guidance, positive concentrations in samples less than 5 times (or 10 times for common laboratory contaminants) the blank sample concentrations are qualified as potentially false positive values, and noted in the data tables.

The lab completed all analyses within holding times.

The trip blank for the October sampling event contained a trace amount of toluene at 2.2 µg/l. No detectable concentrations of target compounds were reported in any of the field or laboratory blanks associated with the 2003 monitoring. Table C-1 presents a summary of the blank sample results for 2003.

All surrogate spike recoveries for the 2003 sampling met acceptance criteria, indicating an acceptable level of precision and accuracy.

The laboratory control sample (LCS) percent recovery for all target compounds in 2003 met established acceptance criteria, indicating an acceptable level of precision and accuracy.

The MS and MSD data all met established acceptance criteria, indicating an acceptable level of precision and accuracy.

Masked duplicate samples were collected from sampling locations well 110, well 113and MG-EFF. A summary of the masked duplicate sample results for 2003 are presented in Appendix C (Table C-2). The precision was determined by calculating the RPD for the data pairs where both sets of data had positive concentrations. The RPD results are dependent on the homogeneity of the sample. High RPDs are expected when results are at or near the reporting limit and do not always indicate poor precision. All RPD results met acceptance criteria.

All quality control aspects of the groundwater monitoring program at the site demonstrated compliance with the data quality objectives as measured by the quality control samples. All analytical data were validated and determined useable as presented in the data tables.

3.0 Groundwater Monitoring

Figure 3 is a map of the site. Figure 4 shows the site monitoring points.

3.1 Water Level Monitoring

The 2003 monitoring program included measuring water levels from six wells screened in the glacial drift; nine wells screened in the Carimona Member of the Platteville Formation; five wells open to the Magnolia Member of the Platteville Formation; and four wells screened in the St. Peter Sandstone. Well construction details are shown in Appendix D. Water level monitoring was carried out in accordance with the 2000–2005 Operations and Monitoring Plan (Appendix A). Historic groundwater elevations are in Appendix D. The 2003 water level measurements are described in Sections 3.1.1 through 3.1.4.

3.1.1 Glacial Drift

Groundwater elevations were measured in glacial drift monitoring wells Q, T, V, W and X on October 27, 2003 (Table 1). The estimated water table contours in the glacial drift are shown on Figure 5. As in past years, the 2003 water levels indicate groundwater in the glacial drift flows toward the southwest.

3.1.2 Carimona Member of Platteville Formation

Groundwater elevations were measured in nine Carimona Member monitoring wells 8, 9, 10, 11, 12, RR, SS, UU and WW on October 27, 2003 (Table 2). The estimated Carimona potentiometric surface is shown on Figure 6. As in past years, the 2003 water levels indicate groundwater in the Carimona member flows toward the north-northwest.

3.1.3 Magnolia Member of Platteville Formation

Water levels were measured in Magnolia Member monitoring wells OO, QQ, TT, VV and 14 on October 27, 2003 (Table 3). The estimated potentiometric surface is shown on Figure 7. As in past years, the 2003 water levels indicate groundwater in the Magnolia member flows toward the northwest. A recovery test was performed in October 2003 to verify capture areas for Magnolia pump-out wells MG1 and MG2, as discussed later in this report.

3.1.4 St. Peter Sandstone

Water levels were measured in St. Peter Sandstone monitoring wells 200, 201, 202 and 203 on October 27, 2003 (Table 4). Figure 8 shows the locations of the St. Peter Sandstone monitoring wells and the estimated potentiometric surface. As in past years, the water levels indicate groundwater in the St. Peter Sandstone flows toward the southwest.

3.2 Water Quality Monitoring

The 2003 annual monitoring program included the collection of water quality samples from monitoring wells screened in the glacial drift, wells open to the Carimona or Magnolia Members of the Platteville Formation, wells screened in the St. Peter Sandstone, and one well open to the Prairie du Chien/Jordan (former Henkel well). All monitoring activities were performed in accordance with the 2000-2005 Operations and Monitoring Plan (Appendix A). The 2000-2005 Operations and Monitoring Plan required that groundwater samples collected from the glacial drift, Platteville Formation, St. Peter Sandstone, and Prairie du Chien/Jordan wells during even years be analyzed for trichloroethylene (TCE) and during odd years be analyzed for the a longer list (Appendix A). The groundwater samples collected during 2003 were analyzed in accordance with the Plan.

The results of the 2003 analyses of monitoring well samples are in Tables 5 through 9. Results from the pumping wells are in Tables 10 through 12. The corresponding applicable Consent Order and NPDES permit limits are also shown in the tables. Historic TCE concentrations and corresponding Consent Order and NPDES permit limits for the glacial drift, Carimona Member, Magnolia Member, St. Peter Sandstone, Prairie du Chien/Jordan, and the groundwater pump-out and treatment system are summarized in Appendix D. The laboratory reports and chain-of-custody forms are in Appendix B. The results from the 2003 monitoring program are discussed in Section 5.0.

3.2.1 Monitoring Wells in the Glacial Drift

Groundwater samples were collected from five glacial drift monitoring wells (Q, T, V, W and X) on October 27, 2003. The results from the laboratory analyses are in Table 5 and the TCE concentrations are shown on Figure 9. The 1985 through 2003 historic TCE concentrations in samples from glacial drift wells Q, X and V are shown on Figure 10.

3.2.2 Monitoring Wells in the Carimona Member of Platteville Formation

Groundwater samples were collected from six monitoring wells (9, 10, 11, 12, SS and UU) screened in the Carimona Member of the Platteville Formation. The samples were collected over the period of October 28-30, 2003. The results from the laboratory analyses are in Table 6 and the TCE concentrations are shown on Figure 11. The 1985 through 2003 TCE concentrations for samples from Carimona Member wells 10 and 11 are shown on Figure 12.

3.2.3 Monitoring Wells in the Magnolia Member of Platteville Formation

Groundwater samples were collected from three monitoring wells (14, QQ and TT) open to the Magnolia Member on October 28-29, 2003. The results from the laboratory analyses are in Table 7 and the TCE concentrations are shown on Figure 13. The 1985 through 2003 TCE concentrations for Magnolia Member wells QQ and TT are shown on Figure 14.

3.2.4 Monitoring Wells in the St. Peter Sandstone

Groundwater samples were collected from St. Peter Sandstone monitoring wells 200, 202 and 203 on October 30-31, 2003. The results from the laboratory analyses are in Table 8 and the TCE concentrations are shown on Figure 15. Historic TCE concentrations for St. Peter Sandstone well 200 are shown on Figure 16.

3.2.5 Prairie du Chien/Jordan Monitoring Well

A groundwater sample was collected from the former Henkel well, open to the Prairie du Chien/Jordan, on October 31, 2003. The results from the laboratory analysis are in Table 9.

3.2.6 Offsite Groundwater Pump-out System

Composite samples were collected in June and October of 2003 from the downgradient glacial drift pump-out wells 111, 112 and 113. This composite was made up of equal volumes of groundwater grab samples from wells 111, 112 and 113. At the request of the MPCA, well-specific samples were also collected from the wells during the other two quarters (March and August) in 2003. For the events when individual samples were collected, the equivalent downstream discharge concentration was calculated using the results from the individual well samples using a flow-weighted average method based on the pumping rates of the individual wells. The samples were analyzed for the VOCs required by the NPDES permit

(Appendix A). The results from the laboratory analyses are in Table 10. The 1985 through 2003 TCE concentrations for the downgradient groundwater pump-out system discharge are shown on Figure 17.

3.2.7 Onsite Glacial Aquifer Pump-out and Treatment Systems

Groundwater treatment system influent and effluent samples were collected quarterly (March, June, August, and October). Samples were collected using a combination of composite and grab samples, similar to the sampling of the downgradient pump-out well system described above. A composite influent sample was made up of equal volume grab samples from wells 109 and 110 during the June and October events. At the request of the MPCA, grab samples from wells 109 and 110 were analyzed during the March and August monitoring events. The combined influent concentration was calculated using a flow-weighted average. Air stripper effluent samples were collected after groundwater pumped from wells 109 and 110 had been treated in the air stripper. The results from the laboratory analyses are in Table 11. The 1985 through 2003 TCE concentrations for the air stripper influent and effluent samples are shown on Figure 17.

3.2.8 Onsite Magnolia Aquifer Pump-out System

Samples were collected from the Magnolia groundwater pump-out system wells MG1 and MG2 quarterly (March, June, August, and October). Effluent from these wells is discharged to the base of the air stripper and then to the storm sewer. Similar to the other pump-out systems, a composite sample was analyzed during the June and October events, and individual well grab samples were analyzed during the March and August monitoring events. The results from the laboratory analysis are in Table 12. The 1993 through 2003 TCE concentrations for the MG pump-out well effluent are shown on Figure 18.

3.3 Surplus Wells

This site has been investigated thoroughly over the years. Over time, it was recognized that many of the monitoring wells and two former recovery wells were no longer necessary for monitoring or recovery. These wells were not abandoned, but instead were retained in case further sampling or aquifer information was necessary. However, such needs have not been realized. These wells are not sampled and typically not used for water level information. Water quality information is obtained from wells in the same formation within a few hundred feet of these wells. Therefore, there are a number of wells that no longer serve any useful purpose, and have in fact become potential liabilities.

In accordance with the plan presented in the approved 2002 annual report, the following wells were abandoned in 2003: 1, G, GG, 106, 107, and 108. Copies of the abandonment records for these wells are in Appendix E. Additional approved abandonments could not be completed due to access issues (primarily student parking). Additional excess wells are scheduled for abandonment in 2004, as previously approved by the MPCA.

4.0 Remedial Action Operations

Although the new NPDES permit no longer requires monthly reporting of discharge, General Mills believed it was prudent to continue monthly site visits and system checks to ensure continuing system performance.

4.1 Groundwater Pump-out Systems

The East Hennepin Avenue Site groundwater pump-out system is made up of seven wells:

- Onsite glacial drift pump-out wells 109 and 110 (Figure 5)
- Onsite Platteville pump-out wells MG1 and MG2 (Figure 7)
- Downgradient glacial drift pump-out wells 111, 112 and 113 (Figure 5)

The performance of each pump-out system is discussed in Sections 4.1.1 through 4.1.4. The combined groundwater pump-out systems removed and discharged 309 million gallons of groundwater in 2003 (591 gpm). The average monthly pumping rate (gpm) for each of the pump-out wells is shown in Table 13. The operational downtime and operating time percentage for 2003 for each system are shown in Table 13. Figure 19 is a series of graphs illustrating pumping performance in 2003.

4.1.1 Onsite Glacial Drift System

The onsite glacial drift pump-out well system (wells 109 and 110) is designed to contain groundwater in the glacial drift with the highest TCE concentrations as set forth in the October 25, 1984 Consent Order. The average combined pumping rate for the onsite glacial drift pump-out system during 2003 was 129 gallons per minute. Average monthly pumping rates for each well ranged from 41 to 81 gpm. A total of approximately 67.6 million gallons was removed from the glacial drift by the onsite glacial drift pump-out well system in 2003.

4.1.2 Downgradient Glacial Drift System

The downgradient glacial drift pump-out well system is designed to contain groundwater in the glacial drift downgradient of the site with a concentration of TCE exceeding 270 µg/L as specified in the Consent Order. The downgradient glacial drift pump-out wells 111, 112 and 113 operated at an average combined rate of 266 gallons per minute in 2003. The pumping rates are monitored monthly, and individual monthly

pumping rates ranged from 58 to 124 gallons per minute (Table 13). Approximately 139 million gallons of groundwater was removed from the glacial drift by the downgradient pump-out system during 2003.

4.1.3 Carimona System

Carimona pump-out well 108 was abandoned in 2003, and had not been operated since 1993 when Magnolia pump-out wells MG1 and MG2 began operation.

4.1.4 Magnolia System

The Magnolia pump-out well system (wells MG1 and MG2) is designed to contain groundwater with a TCE concentration exceeding 27 μg/L in both the Magnolia and Carimona Members of the Platteville Formation. Wells MG1 and MG2 operated at an average combined rate of 195 gallons per minute in 2003. The pumping rates are monitored monthly, and individual monthly pumping rates ranged from 67 to 106 gallons per minute. A total groundwater volume of approximately 102 million gallons was removed from the Platteville Formation during 2003 (Table 14).

A 24-hour aquifer recovery test was performed in October to verify capture areas for the Magnolia Member pump-out system. The pump-out wells were shut down for 24 hours. Water levels were measured in Carimona Member wells RR, SS and WW and Magnolia Member wells OO, TT and VV prior to shut down and 24 hours after shut down. Water level recoveries for these wells ranged from 2.30 to 9.70 feet (Table 14). The recovery test is discussed in detail in Section 5.7.

4.2 Maintenance and Downtime

All pump-out wells were operated continuously at the maximum sustainable yield of the pumps or aquifer during 2003, except for shutdowns caused by electrical or mechanical failures, or the need for well or system maintenance. Table 13 presents reasons for downtime during 2003.

Appendix A lists target and action level pumping rates for each of the groundwater pump-out wells. When pumping rates for an individual well dropped below the monthly action level (Table 13), action was taken to return the pumping rate above the action level. Monthly pumping rates for the pump-out wells at wells 109 and 110 were above action levels indicating that the pump-out wells were operating effectively. However, the monthly pumping rates for the other pump-out wells were occasionally below their respective pumping rate action level. Well 112 again had the poorest performance in 2003, as was the case in recent years. Repeated maintenance, including redevelopment, chemical treatment, and new equipment,

have had limited success. In December 2002, the conveyance line between the well and the discharge point was jetted with a high-pressure line. Initially this action was encouraging, but overall performance in 2003 did not improve. Wells 111 and 113 typically performed well above design rate in 2003, so the slower rate at well 112 should not affect overall capture of the system. Well 113 fell below the action levels on two occasions in 2003. The pump in well 113 was about 10 years old, and was replaced in January 2004.

4.3 Groundwater Treatment System

The glacial aquifer groundwater extracted on site contains the highest VOC concentrations, and is treated actively with an onsite air-stripping tower. The remaining extracted groundwater contains much lower concentrations of VOCs, and this groundwater is passively treated by discharge to the storm sewer system.

Influent and effluent data are summarized in Table 11. The NPDES Permit discharge limits include an annual average effluent TCE concentration of 50 µg/L with a daily maximum limit of 100 µg/L. The 2003 results from the treatment system effluent were below detection limits in all samples, in compliance with the NPDES Permit discharge limits.

The air stripper tower is designed to remove greater than 99 percent of volatile organic compounds from influent groundwater at a discharge rate of up to 150 gallons per minute and a total VOC concentration equal to 1985 conditions, or about 1,000 µg/L. The pumping rate to the tower in 2003 averaged 129 gpm, and the influent VOC concentration ranged from 211 µg/L to 305 µg/L, so the system is operating well within design assumptions. Trace concentrations of VOCs detected in all of the four samples collected from the stripping tower effluent in 2003, confirming that the treatment system was operating effectively.

A complete media change-out of the stripper tower was conducted during a two week period in May of 2003. The spent material was shipped on May 29, 2003 to the SKB Rosemount industrial waste facility for proper disposal.

Scale formation within the air-stripping tower has been identified as a cause of decreased treatment efficiency. In 2000, General Mills installed a pre-treatment system in an effort to reduce hardness buildup. The effectiveness of this system continues to be evaluated. The system was upgraded once in 2001 with a multi-frequency model. A second upgrade to a more powerful unit was completed in February 2002. The effectiveness of this technology is not completely proven, and will continue to be evaluated.

5.0 Discussion of Water Quality Results

The 2003 monitoring results are consistent with past monitoring results. Graphical representations of historic TCE concentrations in samples from selected glacial drift, Carimona Member, Magnolia Member, and St. Peter Sandstone monitoring wells, the down gradient pump-out system, groundwater treatment system, and Magnolia pump-out system are shown on Figures 10, 12, 14, 16, 17 and 18, respectively. Historic TCE water quality data from the various sampling locations are in Appendix D.

Glacial drift and Platteville monitoring is focused on indicator wells selected to monitor pump-out system effectiveness. Several wells within the containment zone of the glacial drift and Platteville pump-out well systems are consequently not monitored. Historic TCE water quality results for samples from the indicator wells are in Appendix D.

5.1 Glacial Aquifer

The groundwater elevations indicate that the direction of groundwater flow in the glacial drift is to the southwest. The 2003 groundwater elevations are within the range of historic water elevations. Water level measurements collected during 1985 and 1986 following startup of the groundwater pump-out well systems demonstrated the effectiveness of the onsite and downgradient glacial drift pump-out systems in preventing lateral migration of glacial drift groundwater with TCE concentrations exceeding 270 µg/L. Glacial drift groundwater elevations from 2003 indicate that the lateral containment zone established during 1985 and 1986 continues to be maintained.

5.1.1 Site Groundwater Pump-out Systems

The results from the analyses of samples collected in 2003 from the onsite glacial drift pump-out well system indicate that the average TCE influent concentration was about 218 µg/L and that the average total VOC concentration was about 250 µg/L (Table 11). The laboratory results indicate that TCE remains the predominant volatile organic compound in the groundwater in the immediate vicinity of the Site. Historic trends are as follows (Figure 17):

- Glacial aquifer TCE concentrations in the onsite pump-out wells were:
  - Initially, about 1,000 µg/L;
  - Stabilized at about 400 µg/L from about 1988 to 1999;

- Decreased to about 300 μg/L from 1999 through 2000;
- Decreased to about 250 μg/L in 2001
- Decreased to about 220 μg/L in 2002.
- Remained at about 220 μg/L in 2003.

- Glacial aquifer TCE concentrations in the downgradient pump-out wells were:
  - Initially, about 300 μg/L;
  - Steadily declined to about 100 μg/L in about 1991;
  - Steady at about 70 μg/L since 1994 (~2μg/L at 111; ~100 μg/L at 113).
- TCE concentrations in the onsite Magnolia wells were:
  - Initially, about 25 μg/L;
  - Declined to about 18 μg/L by 1996
  - Stabilized at about 11 μg/L since 2002.

Analyses of samples collected from wells 109 and 110 are in Table 11. The samples from well 110 contain about 325 μg/L TCE; samples from well 109 contain about 130 μg/L TCE. These results are consistent with pump-out well specific monitoring that has been conducted over the past five years.

5.1.2 Downgradient Pump-out System

The average TCE concentration in 2003 samples was 48 μg/L, and the average total VOC concentration was 57 μg/L (Table 10), similar to results from the past 11 years (Figure 17). The NPDES permit establishes a pH limit and a requirement that no foam or oil sheen be present. The pH was consistently between 6.0 and 9.0 and there was no foam or oil sheen visible on any of the samples.

Analyses of samples collected from the individual pump out wells are in Table 10. The concentration of TCE detected in the sample from well 111 is one to two orders of magnitude lower than detected in samples from wells 112 and 113 (Table 10). Samples from well 113 consistently contain the highest TCE concentrations. TCE concentrations in samples from well 111 are near the detection limit. These results

are consistent with pump-out well specific monitoring that has been conducted over the past 4 years. These wells are designed to be pumped at similar rates.

5.1.3 Glacial Aquifer Monitoring Wells

The 2003 monitoring results from the downgradient sentry wells (Table 5) indicate that the downgradient pump-out system is effective in laterally containing glacial drift groundwater with a TCE concentration exceeding 270 µg/L. The results from 2003 are consistent with historical results. The TCE concentrations generally decreased after the startup of the glacial drift pump-out well systems in 1985 through about 1991, and thereafter have generally stabilized.

5.1.4 BTEX in the Glacial Aquifer

At the request of the MPCA, BETX (benzene, ethylbenzene, toluene and xylene) are being reported. None of these compounds were detected in the 2003 monitoring well samples collected from the glacial aquifer. Nor were these compounds detected in the samples from pumping wells 109, 110, 111, 112, or 113.

5.2 Carimona Member of Platteville Formation

Water levels in the Carimona monitoring wells were generally comparable to those measured in recent years. The potentiometric levels (Figure 6) indicate that the direction of groundwater flow in the immediate vicinity of the site continues to be towards the northwest.

Historic TCE concentrations (1986-2003) reported for wells 10 and 11 are shown on Figure 12. Historic results for all wells are in Table D-7 (Appendix D).

Samples from wells SS, 9, and 12 during 2003 have typically had the lowest TCE concentrations of the Carimona monitoring wells, less than 5 µg/L. The 2003 results are similar to historic results.

When sampling began in the mid-1980s, samples from the other Carimona wells typically had TCE concentrations ranging from 100s to 1,000s of µg/L. The TCE concentrations in samples from these wells have generally declined since the startup of the Platteville groundwater recovery system in 1985, and stabilized in about 1995 at concentrations less than 100 µg/L. The 2003 concentrations in the samples from these wells are consistent with historic results, with all results being less than 50 µg/L. Based on the water level data, groundwater from wells UU, 8, and 10 is likely flowing toward either: well SS, where the TCE concentration is about 3 µg/L; or downward into the Magnolia member where groundwater is being captured (see next section).

Toluene, ethylbenzene and xylene were not detected in any of the Carimona member well samples. Benzene was detected in the samples from wells 9 and 11. Benzene detected at 9 was 12 μg/L.

5.3 Magnolia Member of Platteville Formation

The potentiometric groundwater surface elevations measured in October 2003 are similar to water elevations measured since the Magnolia pump-out system began operation in 1993. The potentiometric levels (Figure 7) indicate the direction of groundwater flow in the immediate vicinity of the Site continues to be northwest.

5.3.1 Magnolia Member Pumping Wells

The 2003 results indicate an average TCE concentration of 12 μg/L and an average total VOC concentration of 15.8 μg/L in the groundwater extracted from the Magnolia member (Table 12). There was a general downward trend of TCE in the Magnolia well effluent since system startup in 1993 through 2002 (Figure 18). The TCE concentration in the initial Magnolia effluent samples was about 30 μg/L. The concentration of TCE measured in the 2003 samples from well MG1 was approximately two times that in samples from well MG2, which is also consistent with historic data.

The NPDES permit establishes discharge limits for the Magnolia pump-out system for TCE and pH, and a requirement that no foam or an oil sheen be present. Throughout 2003, TCE was below its limit, the pH was between the permit limits of 6.0 and 9.0 and there was no foam or oil sheen.

A 24-hour recovery test was performed using the Magnolia Member wells on October 27 and 28, 2003. The test was performed as outlined in the 2000-2005 Operations and Monitoring Plan. The purpose of the test was to determine if Magnolia pump-out wells MG1 and MG2 are maintaining an adequate capture zone in the Platteville Formation. The recovery test involved measuring water levels in wells RR, SS, VV, OO, TT and WW prior to and 24 hours after a shutdown of pump-out wells MG1 and MG2. The difference between the two measurements is the recovery, which is equivalent to the drawdown created by the pumping of the wells. The annually computed drawdown is compared to the drawdown measured during the initial testing in 1992.

The drawdowns measured in 2003 range from 2.30 feet in well RR to 9.70 feet in well TT (Table 14). In each case, the 2003 drawdown exceeds the 1992 drawdown. Since the 1992 drawdowns were shown to provide adequate capture, and the 2003 drawdowns all exceed the startup drawdowns, it follows that the Magnolia pump-out system maintained adequate capture in 2003.

5.3.2 Magnolia Monitoring Wells

The analyses of samples from Magnolia Member wells indicate no detection of TCE in the sample from well QQ. TCE concentrations of 4.7 μg/L and 5.6 μg/L were detected in samples from wells 14 and TT, respectively (Table 7). Figure 14 shows TCE concentrations over time in samples from wells QQ and TT.

Prior to start up of the Magnolia pumping wells, samples from well TT contained about 25 μg/L TCE and samples from well QQ contained about 8 μg/L TCE. Following start up of pumping, TCE concentrations at both wells TT and QQ declined to less than 10 μg/L. Well 14 was installed in 1998 to provide an additional downgradient monitoring point. TCE had increased in both wells TT and 14, and appeared to have stabilized from 2000-2002 at about 8 μg/L. In 2003 TCE concentrated levels have dropped to about 5 μg/L. TCE concentrations in samples from pumping well MG1 have also dropped to concentrations less than 10 μg/L. TCE in Magnolia pumping well MG2 samples has dropped to less than 20 μg/L. TCE concentrations remain below the Consent Order level of 27 μg/L in all samples. The pumping rates, the recovery test data, and the water quality data show that pump-out wells MG1 and MG2 continue to effectively capture Platteville Formation groundwater and control the extent of the TCE concentration specified in the Consent Order.

5.3.3 BTEX in the Magnolia Member

BTEX compounds were not detected in the samples from the Magnolia monitoring wells.

5.4 St. Peter Sandstone

Water elevations in St. Peter monitoring wells 200, 201, 202 and 203 were consistent with historic water elevations, and the potentiometric levels (Figure 8) indicate the direction of groundwater flow is to the southwest, consistent with regional flow in the St. Peter Sandstone and historic data from the site.

Historically, TCE concentrations have been highest in samples from well 200, which is a few hundred feet downgradient of the site. From initial site work through 1997, samples from well 200 contained about 100 μg/L TCE. After 1997, the concentrations dropped off sharply, and have been below 10 μg/L since 2000

Consistent with historic results, TCE concentrations were not detectable in the sample from well 202. The 2003 sample from well 203 contained 28 μg/L TCE. This was the fourth year of increasing concentrations.

None of the BTEX compounds were detected in the samples from the St. Peter monitoring wells.

5.5 Prairie du Chien/Jordan

TCE was detected at 4 μg/L in the sample collected from the Henkel well in 2003. Concentrations when monitoring began in the mid-1980s were near 50 μg/L. TCE has been below 10 μg/L in all but one sample since 1994, and has been below detection in three of the six samples since 1998.

None of the BTEX compounds were detected in the sample from the Prairie du Chien/Jordan aquifer monitoring well.

6.0 Conclusions

1. The 2003 operations and maintenance were consistent with historic O&M. The remediation system is about 15 years old, and remaining original equipment is beginning to wear, leading to slightly more maintenance each year, but this should not affect overall performance of the system. No emergency or contingency actions were necessary in 2003. Table 15 summarizes monitoring and maintenance completed in 2003.

2. The stripper media was changed out in May 2003. General Mills continues to evaluate the performance of a pre-treatment unit, and has installed an updated version.

3. All water level data are consistent with historic data, and the groundwater flow patterns in the various aquifers appear to have stayed constant.

4. The 2003 water quality monitoring results are generally consistent with historic results. The monitoring program appears to be appropriate and adequate for the site. As discussed in the following paragraphs, water quality remains stable at most wells, but there have been some significant declining trends.

5. Groundwater produced by glacial aquifer pumping well 110 continues to have TCE concentrations above the Consent Order limit of 270 µg/L. TCE concentrations appear to be declining in the onsite glacial aquifer pump out wells, and appear stable in the downgradient glacial aquifer pumping wells and monitoring wells. Most downgradient monitoring well samples contain less than 10 µg/L TCE, including pump out well 111.

6. The Carimona Member acts as a leaky confining layer between the glacial drift and the Magnolia Member. TCE in samples from the Carimona member dropped by one to two orders of magnitude, and have remained stable at less than 100 µg/L for many years. Concentrations of TCE were detected above the Consent Order limit (27 µg/L) in one well in 2003, 48 µg/L at well 11. This is an upgradient well in the Carimona memeber Benzene was detected at 12 µg/L at well 9.

7. The Magnolia Member pump-out wells have a greater influence on the vertical gradient than did Carimona pump-out well 108. The increased hydraulic gradient causes increased leakage from the Carimona Member into the Magnolia Member, and allows for greater capture of affected groundwater. The Magnolia Member pump-out wells MG1 and MG2 effectively act as containment wells for lateral

flow of groundwater in the Carimona Member, per the Consent Order, and in the Magnolia member. The Magnolia Member recovery test data indicate that pump-out wells MG1 and MG2 are maintaining equal or better capture compared to their initial assessment. The highest TCE concentrations from the Magnolia Member wells are detected in the samples from pumping well MG1 (~15 µg/L). The TCE concentrations in all Magnolia Member samples from 2003 were below the Consent Order limit of 27 µg/L. However, given the concentrations detected in the Carimona Member and the glacial aquifer, pumping of the Magnolia wells should continue.

8. In the last five years, TCE concentrations have declined dramatically in St. Peter aquifer well 200, which is closest to the site, from about 100 µg/L to less than 5 µg/L. Although TCE concentrations have been increasing in samples from well 203, it appears that the rate of increase is declining.

9. Trichloroethene was detected in the Henkel well sample, which has been the case in three of the last six samples. The 2003 concentration is much lower than when monitoring began in the mid-1980s.

10. At the request of the MPCA, General Mills has reported and evaluated benzene, ethylbenzene, toluene, and xylene results in the 2002 and 2003 water quality monitoring data. There were only a few reported detections of BTEX compounds in the shallow aquifers, and the data as a whole suggest that this site is not a significant source of these compounds.

11. General Mills has identified a number of wells that are no longer useful to the site remediation, and so have become potential liabilities. About half were abandoned in 2003, and the remaining excess wells should be abandoned in 2004.

7.0 Recommendations for 2004

1. Continue operation and maintenance of the onsite pump-out and groundwater treatment systems and the downgradient glacial drift pump-out system in accordance with the 1984 Consent Order and other regulatory documents.

2. Inspect the groundwater pump-out wells and treatment systems on at least a monthly basis.

3. Submit treatment system and pump-out system monitoring results on a quarterly basis per the NPDES permit.

4. Monitor groundwater elevations and groundwater quality in accordance with the 2000–2005 Operations and Monitoring Plan.

5. Collect and analyze pump-out well-specific samples during two quarters in 2004.

6. Discontinue monitoring of benzene, ethyl benzene, toluene and xylene.

7. Abandon wells that are no longer necessary (see Figure 20 and Table 16).

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Table 1
2003 Groundwater Elevations
Glacial Drift Wells

(elevations in ft.-MSL)

Location Date	Q 10/27/2003	T 10/27/2003	V 10/27/2003	W 10/27/2003	X 10/27/2003
Water Elevation	828.18	832.50	818.02	817.97	823.07

Table 2
2003 Groundwater Elevations
Carimona Member Wells

(elevations in ft.-MSL)

Location	RR	RR	SS	SS	UU	WW	WW
Date	10/27/2003	10/28/2003	10/27/2003	10/28/2003	10/27/2003	10/27/2003	10/28/2003
Water Elevation	831.22	833.52	824.26	829.13	831.09	831.10	833.41

Location	8	9	10	11	12
Date	10/27/2003	10/27/2003	10/27/2003	10/27/2003	10/27/2003
Water Elevation	831.22	831.27	831.46	831.08	825.42

Table 3
2003 Groundwater Elevations
Magnolia Member Wells

(elevations in ft.-MSL)

Location Date	OO 10/27/2003	OO 10/28/2003	QQ 10/27/2003	TT 10/27/2003	TT 10/28/2003	VV 10/27/2003	VV 10/28/2003	14 10/27/2003
Water Elevation	820.43	828.52	820.70	817.16	826.86	823.44	829.63	816.50

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Table 4
2003 Groundwater Elevations
St. Peter Sandstone Wells

(elevations in ft.-MSL)

Location Date	200 10/27/2003	201 10/27/2003	202 10/27/2003	203 10/27/2003
Water Elevation	766.23	779.59	754.56	754.41

Table 5
2003 Water Quality Data
Glacial Drift Wells

(concentrations in ug/L)

Location Date	Q 10/29/2003	T 10/29/2003	V 10/29/2003	W 10/29/2003	X 10/29/2003	Consent Order Limit
1,1,1-Trichloroethane	2.4	<1.0	<1.0	<2.0	<1.0	--
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<2.0	<1.0	--
1,1-Dichloroethane	<1.0	<1.0	<1.0	<2.0	<1.0	--
1,2-Dichloroethane	<1.0	<1.0	<1.0	<2.0	<1.0	--
1,2-Dichloroethylene, cis	<1.0	<1.0	<1.0	52	<1.0	--
1,2-Dichloroethylene, trans	<1.0	<1.0	<1.0	3.5	<1.0	--
Benzene	<1.0	<1.0	<1.0	<2.0	<1.0	--
Ethyl benzene	<1.0	<1.0	<1.0	<2.0	<1.0	--
Tetrachloroethylene	<1.0	<1.0	<1.0	<2.0	<1.0	--
Toluene	<1.0	<1.0	<1.0	<2.0	<1.0	--
Trichloroethylene	<1.0	<1.0	14	14	<1.0	270
Vinyl chloride	<1.0	<1.0	<1.0	<2.0	<1.0	--
Xylenes total	<3.0	<3.0	<3.0	<6.0	<3.0	--

-- No consent order limit.

Table 6
2003 Water Quality Data
Carimona Member Wells

(concentrations in ug/L)

Location Date Dup	SS 10/28/2003	UU 10/29/2003	9 10/30/2003	10 10/30/2003	10 10/30/2003 DUP	11 10/28/2003	12 10/28/2003	Consent Order Limit
1,1,1-Trichloroethane	<1.0	1.5	<1.0	1.2	1.2	<2.0	<1.0	--
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	--
1,1-Dichloroethane	3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	--
1,2-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	--
1,2-Dichloroethylene, cis	<1.0	<1.0	<1.0	<1.0	<1.0	7.5	<1.0	--
1,2-Dichloroethylene, trans	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	--
Benzene	<1.0	<1.0	12	<1.0	<1.0	6.9	<1.0	--
Ethyl benzene	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	--
Tetrachloroethylene	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	--
Toluene	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	--
Trichloroethylene	2.9	25	1.1	15	16	**48**	1.7	**27**
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	--
Xylenes total	<3.0	<3.0	<3.0	<3.0	<3.0	<6.0	<3.0	--

-- No consent order limit.

Table 7
2003 Water Quality Data
Magnolia Member Wells

(concentrations in ug/L)

Location Date	QQ 10/29/2003	TT 10/28/2003	14 10/28/2003	Consent Order Limit
1,1,1-Trichloroethane	<1.0	2.0	1.6	--
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	--
1,1-Dichloroethane	<1.0	<1.0	<1.0	--
1,2-Dichloroethane	<1.0	<1.0	<1.0	--
1,2-Dichloroethylene, cis	1.1	2.9	1.7	--
1,2-Dichloroethylene, trans	<1.0	<1.0	<1.0	--
Benzene	<1.0	<1.0	<1.0	--
Ethyl benzene	<1.0	<1.0	<1.0	--
Tetrachloroethylene	<1.0	<1.0	<1.0	--
Toluene	<1.0	<1.0	<1.0	--
Trichloroethylene	<1.0	5.6	4.7	27
Vinyl chloride	<1.0	<1.0	<1.0	--
Xylenes total	<3.0	<3.0	<3.0	--

-- No consent order limit.

Table 8
2003 Water Quality Data
St. Peter Sandstone Wells

(concentrations in ug/L)

Location Date	200 10/31/2003	202 10/30/2003	203 10/31/2003	Consent Order Limit
1,1,1-Trichloroethane	<1.0	<1.0	<1.0	--
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	--
1,1-Dichloroethane	<1.0	<1.0	<1.0	--
1,2-Dichloroethane	<1.0	<1.0	<1.0	--
1,2-Dichloroethylene, cis	1.6	<1.0	3.6	--
1,2-Dichloroethylene, trans	<1.0	<1.0	<1.0	--
Benzene	<1.0	<1.0	<1.0	--
Ethyl benzene	<1.0	<1.0	<1.0	--
Tetrachloroethylene	<1.0	<1.0	<1.0	--
Toluene	<1.0	<1.0	<1.0	--
Trichloroethylene	4.2	<1.0	28	27
Vinyl chloride	<1.0	<1.0	<1.0	--
Xylenes total	<3.0	<3.0	<3.0	--

-- No consent order limit.

Table 9
2003 Water Quality Data
Prairie Du Chien / Jordan Well

(concentrations in ug/L)

Location Date	HENKEL 10/31/2003
1,1,1-Trichloroethane	<1.0
1,1,2,2-Tetrachloroethane	<1.0
1,1-Dichloroethane	<1.0
1,2-Dichloroethane	<1.0
1,2-Dichloroethylene, cis	4.2
1,2-Dichloroethylene, trans	<1.0
Benzene	<1.0
Ethyl benzene	<1.0
Tetrachloroethylene	<1.0
Toluene	<1.0
Trichloroethylene	4.0
Vinyl chloride	<1.0
Xylenes total	<3.0

Table 10
2003 Water Quality Data
Downgradient Glacial Drift Pump-Out System

(concentrations in ug/L)

Location Date Dup	111 3/13/2003	112 3/13/2003	113 3/13/2003	Flow Weighted Discharge 3/13/2003	Discharge 6/2/2003	Flow Weighted Discharge 6/2/2003	111 8/26/2003	112 8/26/2003	113 8/26/2003	113 8/26/2003 DUP	Flow Weighted Discharge 8/26/2003	Discharge 10/31/2003	Flow Weighted Discharge 10/31/2003
1,1,1-Trichloroethane	3.2	1.7	<5.0	NC	2.8	NC	1.8	<1.0	<5.0	<10	NC	<2.0	NC
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<5.0	NC	<2.0	NC	<1.0	<1.0	<5.0	<10	NC	<2.0	NC
1,1-Dichloroethane	<1.0	<1.0	<5.0	NC	<2.0	NC	<1.0	<1.0	<5.0	<10	NC	<2.0	NC
1,2-Dichloroethane	<1.0	<1.0	<5.0	NC	<2.0	NC	<1.0	<1.0	<5.0	<10	NC	<2.0	NC
1,2-Dichloroethylene, cis	<1.0	2.8	18	NC	7.2	NC	<1.0	2.7	19	20	NC	6.3	NC
1,2-Dichloroethylene, trans	<1.0	<1.0	<5.0	NC	<2.0	NC	<1.0	<1.0	<5.0	<10	NC	<2.0	NC
Benzene	<1.0	<1.0	<5.0	NC	<2.0	NC	<1.0	<1.0	<5.0	<10	NC	<2.0	NC
Ethyl benzene	<1.0	<1.0	<5.0	NC	<2.0	NC	<1.0	<1.0	<5.0	<10	NC	<2.0	NC
Tetrachloroethylene	<1.0	2.2	<5.0	NC	<2.0	NC	<1.0	1.4	<5.0	<10	NC	<2.0	NC
Toluene	<1.0	<1.0	<5.0	NC	<2.0	NC	<1.0	<1.0	<5.0	<10	NC	<2.0	NC
Trichloroethylene	2.9	52	110	47	44	44	1.7	40	90	100	55	48	48
Vinyl chloride	<1.0	<1.0	<5.0	NC	<2.0	NC	<1.0	<1.0	<5.0	<10	NC	<2.0	NC
Xylenes total	<3.0	<3.0	<15	NC	<6.0	NC	<3.0	<3.0	<15	<30	NC	<6.0	NC
Sum Volatile Organics	6.1	59	128	55	54	54	3.5	44	109	120	65	54	54

-- Not analyzed.

NC Flow weighted average not calculated for these individual contaminants.

Table 11
2003 Water Quality Data
Site Glacial Drift Pump-Out and Treatment Systems

(concentrations in ug/L)

Location Date Dup	109 3/13/2003	110 3/13/2003	110 3/13/2003 DUP	Flow Weighted Site Glacial Drift Influent Average 3/13/2003	INF 6/2/2003	109 8/26/2003	110 8/26/2003	Flow Weighted Site Glacial Drift Influent Average 8/26/2003	INF 10/31/2003	EFF ** 3/13/2003	EFF ** 6/2/2003	EFF ** 8/26/2003	EFF ** 10/31/2003
1,1,1-Trichloroethane	<5.0	<10	<10	NC	<10	<5.0	<10	NC	<10	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<5.0	<10	<10	NC	<10	<5.0	<10	NC	<10	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	<5.0	<10	<10	NC	<10	<5.0	<10	NC	<10	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	<5.0	<10	<10	NC	<10	<5.0	<10	NC	<10	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethylene, cis	5.0	73	67	NC	40	<5.0	54	NC	24	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethylene, trans	<5.0	<10	<10	NC	<10	<5.0	<10	NC	<10	<1.0	<1.0	<1.0	<1.0
Benzene	<5.0	<10	<10	NC	<10	<5.0	<10	NC	<10	<1.0	<1.0	<1.0	<1.0
Ethyl benzene	<5.0	<10	<10	NC	<10	<5.0	<10	NC	<10	<1.0	<1.0	<1.0	<1.0
Tetrachloroethylene	<5.0	<10	<10	NC	<10	<5.0	<10	NC	<10	<1.0	<1.0	<1.0	<1.0
Toluene	<5.0	<10	<10	NC	<10	<5.0	<10	NC	<10	<1.0	<1.0	<1.0	<1.0
Trichloroethylene	150	340	350	262	220	110	300	188	200	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<5.0	<10	<10	NC	<10	<5.0	<10	NC	<10	<1.0	<1.0	<1.0	<1.0
Xylenes total	<15	<30	<30	NC	<30	<15	<30	NC	<30	<3.0	<3.0	<3.0	<3.0
Sum Volatile Organics	155	413	417	305	260	110	354	211	224	ND	ND	ND	ND

ND Not detected.

NC Flow weighted average not calculated for these individual contaminants.

** Effluent limit for TCE - 50 ug/L average and 100 ug/L instantaneous

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Table 12
2003 Water Quality Data
Magnolia Pump-Out System

(concentrations in ug/L)

Location Date Dup	MG1 3/13/2003	MG2 3/13/2003	Flow Weighted MG Discharge Average 3/13/2003	MGEFF 6/2/2003	MGEFF 6/2/2003 DUP	Flow Weighted MG Discharge Average 6/2/2003	MG1 8/26/2003	MG2 8/26/2003	Flow Weighted MG Discharge Average 8/26/2003	MGEFF 10/31/2003
1,1,1-Trichloroethane	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0	<1.0		<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0
1,1-Dichloroethane	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0
1,2-Dichloroethane	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0
1,2-Dichloroethylene, cis	3.3	1.6	NC	2.5	1.7	NC	2.9	1.8	NC	2.1
1,2-Dichloroethylene, trans	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0
Benzene	1.3	<1.0	NC	1.0	1.0	NC	1.7	<1.0	NC	<1.0
Ethyl benzene	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0
Tetrachloroethylene	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0
Toluene	<1.0	<1.0	NC	<1.0	<1.0	NC	2.7 b	<1.0	NC	<1.0
Trichloroethylene	19	9.6	14.4	12	12	12	15	8.0	10.9	12
Vinyl chloride	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0	<1.0	NC	<1.0
Xylenes total	<3.0	<3.0	NC	<3.0	<3.0	NC	<3.0	<3.0	NC	<3.0
Sum Volatile Organics	23.6	11.2	17.6	15.5	14.7	15.1	22.3	9.8	15.0	14.1

ND Not detected.

NC Flow weighted average not calculated for these individual contaminants.

Table 13
2002 Pumping Rates

	Glacial Drift Pumpout Wells Average Pumping Rate (gpm)					Magnolia Pumpout Wells Average Pumping Rate (gpm)	
	109	110	111	112	113	MG1	MG2
Target Pumping Rate (Average Monthly gpm	30	50	90	100	90	100	100
Action Level (Average Monthly gpm)	20	40	80	80	80	80	80
January-03	74	50	103	65	93	96	94
February-03	80	53	110	64	8	105	100
March-03	87	59	136	69	0	117	111
April-03	84	59	96	67	82	111	106
May-03	50	36	100	62	83	70	61
June-03	78	55	106	70	87	110	94
July-03	85	60	106	64	87	119	102
August-03	74	52	102	84	83	67	94
September-03	76	55	102	80	82	94	103
October-03	74	54	107	77	86	79	99
November-03	79	56	114	81	92	98	109
December-03	74	40	107	74	69	91	102
2003 Average Monthly gpm	76	52	107	71	71	96	98
2002 Average Monthly gpm	80	51	109	50	100	97	99
2001 Average Monthly gpm	49	46	108	77	90	97	98
2000 Average Monthly gpm	43	40	94	47	100	104	95

Table 14

Recovery Test Comparison Summary

Well	Pumping Levels in Ft. MSL		Non-Pumping Levels in Ft. MSL		Recovery (ft) 10/27/03	Drawdown (ft) 1992 Test	2003 Δ (ft)	2002 Δ (ft)	2001 Δ^1 (ft)	2000 Δ^2 (ft)
	10/1/92 (for 8 days)	10/27/03 (for 11 years)	9/22/92	10/28/03						
RR	828.21	831.22	829.81	833.52	2.30	1.60	0.7	0.85	0.59	0.66
OO	819.64	820.43	825.69	828.52	8.09	6.05	2.04	2.35	1.52	1.46
SS	824.57	824.26	827.31	829.13	4.87	2.74	2.13	3.44	3.37	2.60
TT	816.65	817.16	823.22	826.86	9.70	6.57	3.13	3.42	2.38	2.21
VV	821.33	823.44	826.96	829.63	6.19	5.23	0.96	1.42	0.86	0.91
WW	828.08	831.10	829.71	833.41	2.31	1.63	0.68	1.03	0.55	0.63

Δ^1 = Recovery (12/6/01) – Drawdown (1992 test)

Δ^2= Recovery (11/22/00) – Drawdown (1992 test)

Table 15

Summary of 2003 Activities

2003	Monitoring and Reporting	O&M
January	10 – Quarterly NPDES Report to GMI/MPCA 24 – 2002 Water Appropriations Worksheets submitted	2 – Site inspection 31 – Site Inspection
February	28 – Submitted 2002 Annual Report	28 – Site Inspection
March	13 – Discharge Monitoring 24 – Quarterly Maintenance	Greasing motors, maintenance totalizers recording electrical AMPs. Rebuilt totalizer meter for 113.
April	9 – Quarterly NPDES report to GMI/MPCA 29 – Manifested media waste to SKB-Rosemount	3 – Site inspection Upgraded Freiji system. Completed media change-out.
May	2 – Discharge monitoring 22 – Completed waste profile sheet for stripper media	5 – Site Inspection
June		2 – Site Inspection Greasing motors; totalizer maintenance; recording electrical AMPs.
July	10 – Quarterly NPDES Report to GMI/MPCA	1 – Site Inspection
August	6 – Discharge monitoring	4 – Site inspection Greasing motors, maintenance totalizers recording electrical AMPs.
September		2 – Site inspection
October	Annual monitoring event 4 – Quarterly NPDES Report to GMI/MPCA	1 – Site inspection.
November		Abandoned Wells 108, G, GG, 107, 106, and 1. 20 – Site Maintenance
December		1 – Site inspection 31 – Site inspection

Table 16
Proposed Wells to be Abandoned

Well Name	Geologic Unit	Well Monitored Annually	Abandon?	Comments
B	Glacial Drift	--	--	Up gradient clean glacial drift well.
P	Glacial Drift	--	Yes	Condition unknown.
Q	Glacial Drift	WQ	--	Down gradient of source used for monitoring.
R	Glacial Drift	--	Yes	Area adequately monitored by V, W, and T
S	Glacial Drift	--	--	Middle of plume between 110 and 112.
T	Glacial Drift	WQ	--	Down gradient of source.
U	Glacial Drift	--	Yes	Well is lateral of the source.
V	Glacial Drift	WQ	--	Down gradient of source.
W	Glacial Drift	WQ	--	Down gradient of source.
X	Glacial Drift	WQ	--	Down gradient of source.
2	Glacial Drift	--	--	Good location down gradient of source.
3	Glacial Drift	--	Yes	Area adequately monitored by V, W, and T
4	Glacial Drift	--	Yes	Area adequately monitored by V, W, and T
5	Glacial Drift	--	Yes	Area adequately monitored by V, W, and T
109	Glacial Drift	WQ	--	Active pump-out well
110	Glacial Drift	WQ	--	Active pump-out well
111	Glacial Drift	WQ	--	Active pump-out well
112	Glacial Drift	WQ	--	Active pump-out well
113	Glacial Drift	WQ	--	Active pump-out well
8	Carimona Member	WQ	--	Possibly unnecessary because of 9, and 10.
9	Carimona Member	WQ	--	Down gradient of source.
10	Carimona Member	WQ	--	Down gradient of source.
11	Carimona Member	WQ	--	Down gradient of source.
12	Carimona Member	WQ	--	Up gradient
13	Carimona Member	--	Yes	Up gradient?
BB	Carimona Member	--	--	Center of plume
SS	Carimona Member	WQ	--	Down gradient of source.
UU	Carimona Member	WQ	--	Down gradient of source.
RR	Carimona Member	WL	--	Up gradient?
WW	Carimona Member	WL	--	Monitoring can be collected at 9 and 10.
14	Magnolia Member	WQ	--	Newly installed lateral location
QQ	Magnolia Member	WQ	--	Down gradient
OO	Magnolia Member	WL	--	QQ is one block side gradient.
TT	Magnolia Member	WQ	--	Upgradient
VV	Magnolia Member	WL	--	Upgradient of source
ZZ	Magnolia Member	--	Yes	Upgradient of source
MG-1	Magnolia Member	WQ	--	Active pump-out well
MG-2	Magnolia Member	WQ	--	Active pump-out well
200	St. Peter	WQ	--	Down gradient of source used for monitoring.
201	St. Peter	WL	--	Upgradient
202	St. Peter	WQ	--	Down gradient of source used for monitoring.
203	St. Peter	WQ	--	Down gradient of source used for monitoring.
Henkel	Prairie du Chien	WQ	--	Only Prairie du Chein well

WQ Water quality and water level monitoring
WL Water level monitoring only

Table 16
Previously Abandoned Wells
Continued

Well Name	Geologic Unit	Well Monitored Annually	Abandon?	Well Abandoned
1	Glacial Drift	na	Yes	Well Abandoned 2003
A	Glacial Drift	na	Yes	Abandoned
C	Glacial Drift	na	Yes	Abandoned
D	Glacial Drift	na	Yes	Abandoned
E	Glacial Drift	na	Yes	Abandoned
F	Glacial Drift	na	Yes	Abandoned
G	Glacial Drift	na	Yes	Well abandoned in 2003
H	Glacial Drift	na	Yes	Abandoned
I	Glacial Drift	na	Yes	Abandoned
J	Glacial Drift	na	Yes	Abandoned
K	Glacial Drift	na	Yes	Abandoned
L	Glacial Drift	na	Yes	Abandoned
M	Glacial Drift	na	Yes	Abandoned
N	Glacial Drift	na	Yes	Abandoned
O	Glacial Drift	na	Yes	Abandoned
Y	Glacial Drift	na	Yes	Abandoned
Z	Glacial Drift	na	Yes	Abandoned
GG	Magnolia Member	na	Yes	Well abandoned in 2003
II	Carimona/Magonlia	na	Yes	Abandoned
LL	Carimona/Magonlia	na	Yes	Abandoned
PP	Carimona Member	na	Yes	Abandoned
106	Glacial Drift	na	Yes	Well abandoned in 2003
107	Glacial Drift	na	Yes	Well abandoned in 2003
108	Carimona Member	na	Yes	Well abandoned in 2003

Figures

Source: Minneapolis North, New Brighton, Minneaopolis South and St. Paul West, Minnesota Quadrangles, 7.5 Minute Series, 1993.

N

0 2000 4000

Scale in Feet

QUADRANGLE LOCATION

Figure 1

EAST HENNEPIN AVENUE SITE
REGIONAL LOCATION MAP

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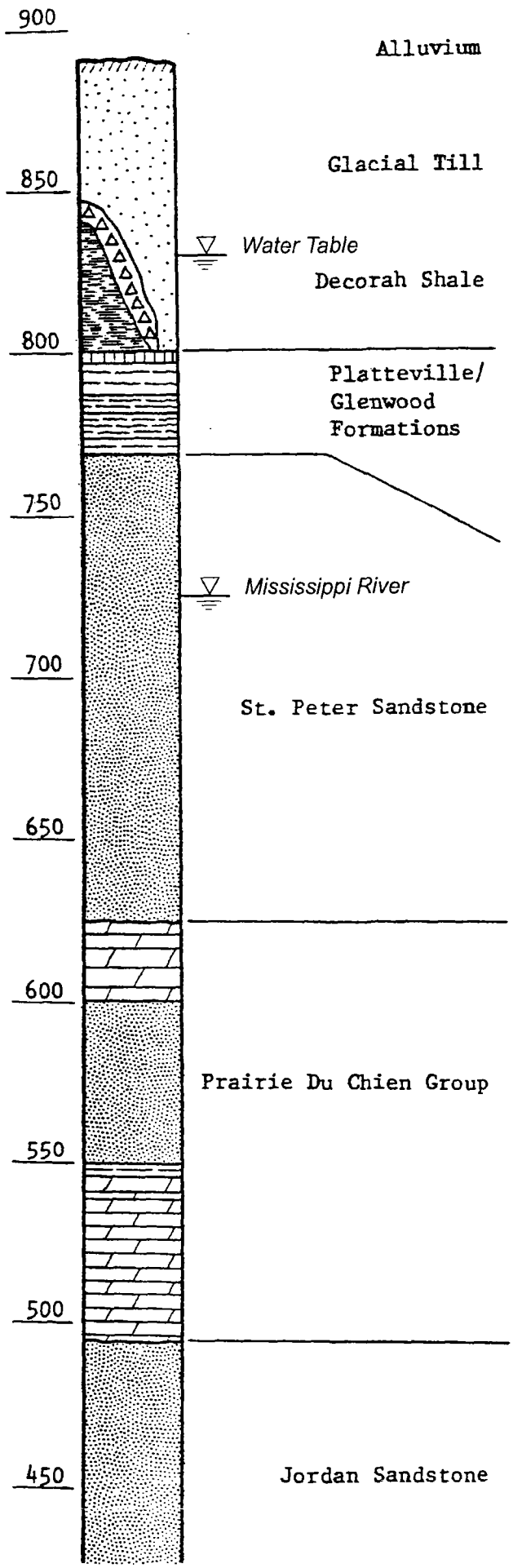


Alluvium

Sand, gravelly sand and silty sand, sometimes overlain by bogs and marshes which have been drained and filled. Overlying soil is variable in composition often clayey or silty. Deposits are terrace deposits from Glacial River Warren. Thickness ranges from 23 to 57 feet.

Glacial Till

Gray and red tills associated with Des Moines and Superior lobes. Unsorted material with variable texture containing clay sizes and boulders. Sometimes underlain by thin layer of alluvium. Contains sand lenses. Absent in many places, up to 20' thick.

Decorah Shale

Greenish-gray to olive-gray claystone, fissile, fossiliferous, contains several limestone layers. Patchy in this area. Thicknesses range up to 50'.

Platteville/ Glenwood Formations

Carimona member - micrite, fossiliferous, often fractured and weathered, 3.5-4.5' thick.
Magnolia member - fossiliferous micrite, calcitic shale, with rippled bedding, corroded zones, some fractures. 8.5-9' thick.
Hidden Falls - micrite, shaly, fossiliferous, 6-7' thick.
Mifflin member, thin beds of limestone, interbedded shale 12-13' thick.
Pecatonica member - dolomite, hard, 1-1.5' thick.
Glenwood shale - green shale, sandy at the base, 3-5' thick.

St. Peter Sandstone

Light yellow or white, medium grained, massive appearing sandstone composed of rounded and subrounded grains. Thin beds of green shale are present. Ranges in thickness from 150-170'.

Prairie Du Chien Group

Thickness of entire formation is 120'-150'.
Oneota Dolomite - thin to thick bedded, light brownish gray or buff, fine- to medium-grained dolomite, silt sized dolomite matrix.
New Richmond Sandstone - fine- to medium-grained quartzose sandstone and quartzitic dolomite, minor amounts of shale and pure dolomite.
Willow River Dolomite - thin to thick bedded dolomite, sandy dolomite with some interbedded quartzose sandstone.

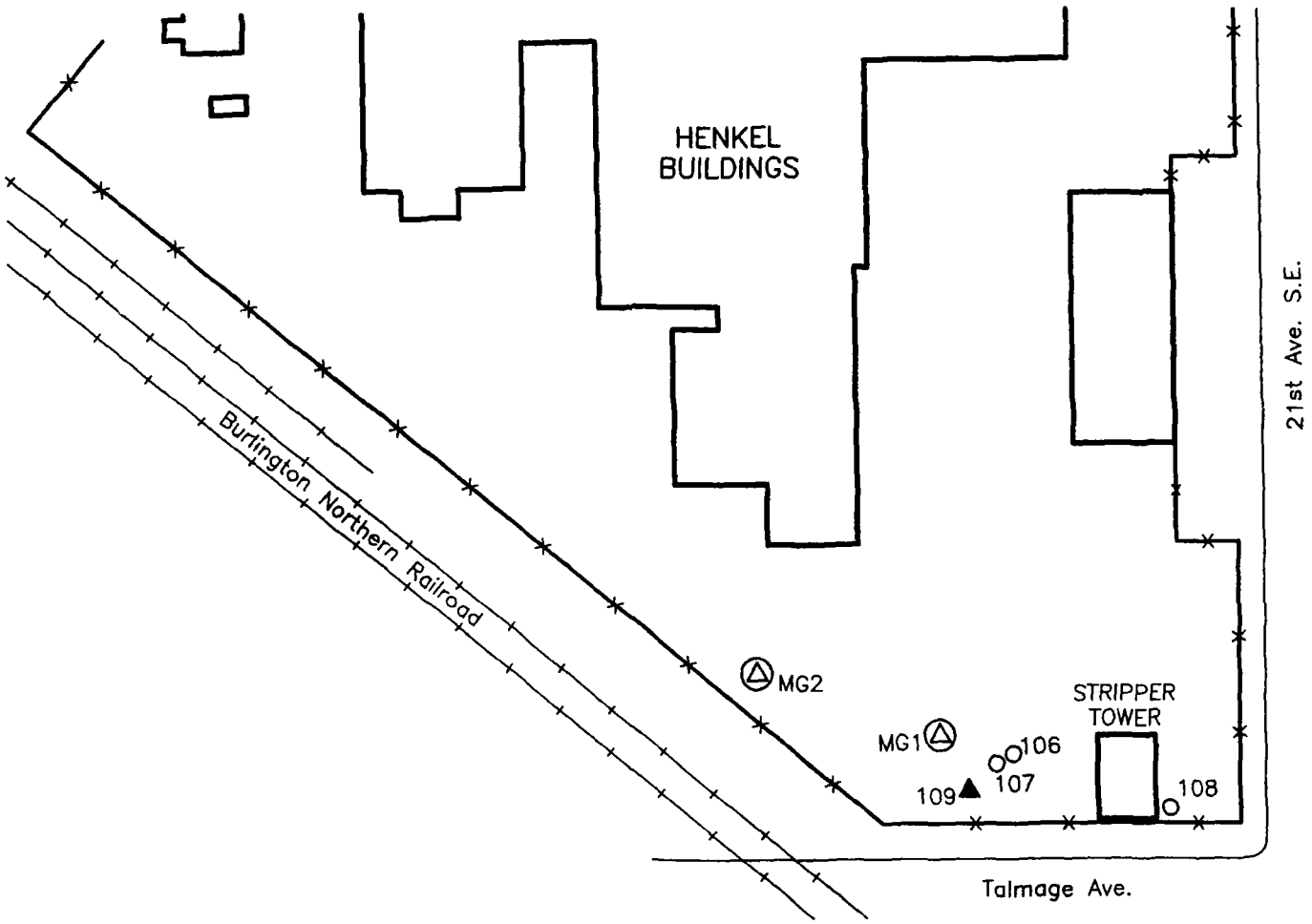
Jordan Sandstone

Argillaceous and dolomitic quartz sandstone with pebble-size clasts of dolomitic sandstone and thin beds of dolomite, white or yellow, coarse to medium-grained orthoquartzites to yellow, silty, fine grained quartzose sandstone. 85-100' thick. Underlain by the St. Lawrence Formation which is 120'-200' thick and contains a variety of silty or sandy dolomitic rocks.

P:23\27\169\FIGURE\GeoColumn.CDR RLG 01-23-03

Figure 2

GENERALIZED GEOLOGIC COLUMN



0 80 160

SCALE IN FEET

▲ Glacial Drift Pump-Out Well

Ⓐ Magnolia Member Pump-Out Well

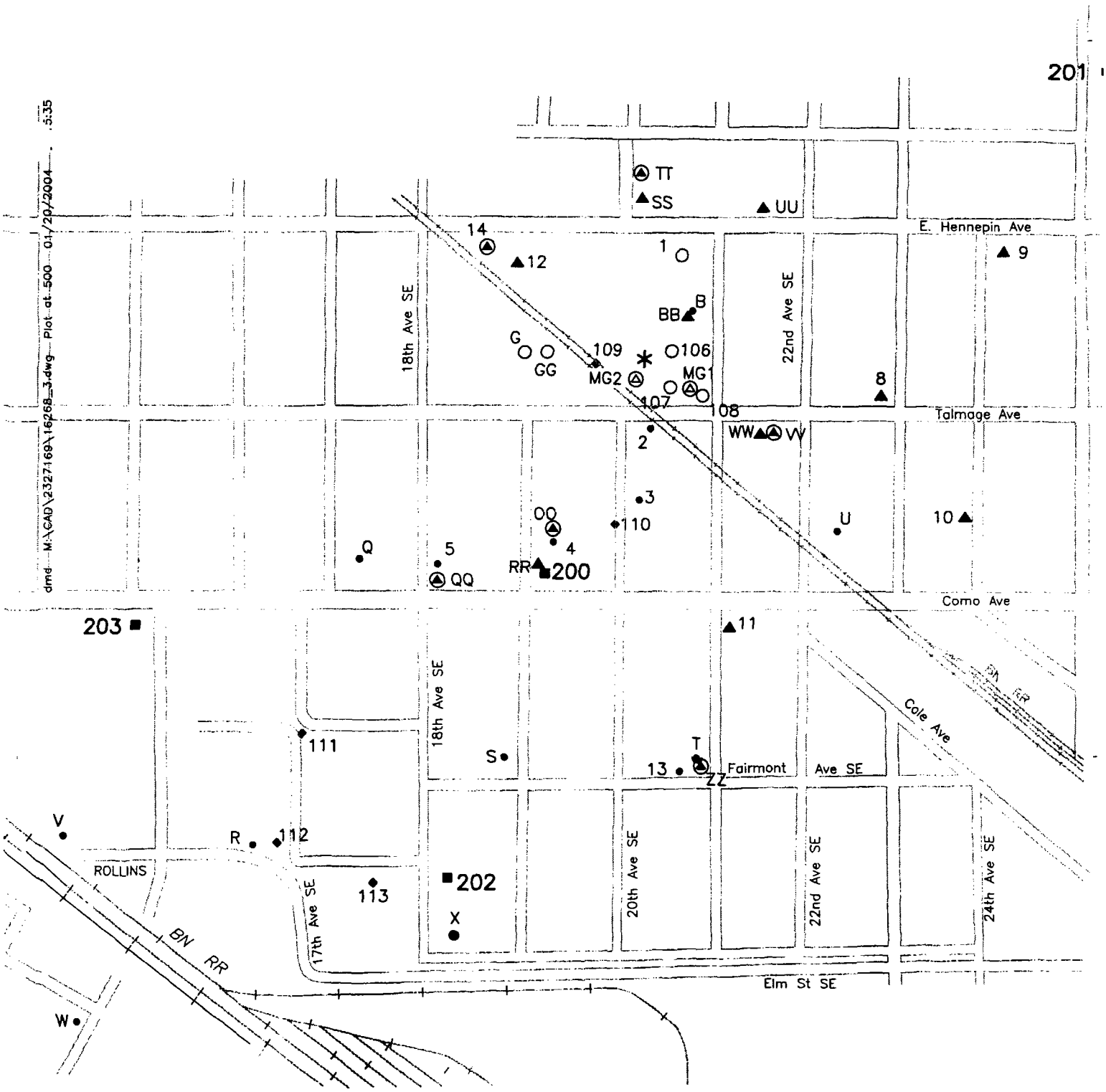
• Monitoring Well

o Well Abandoned in 2003

dmd M:\CAD\2327169\14229_2.DWG Plot at 80 01/19/2004 15:41:29

Figure 3

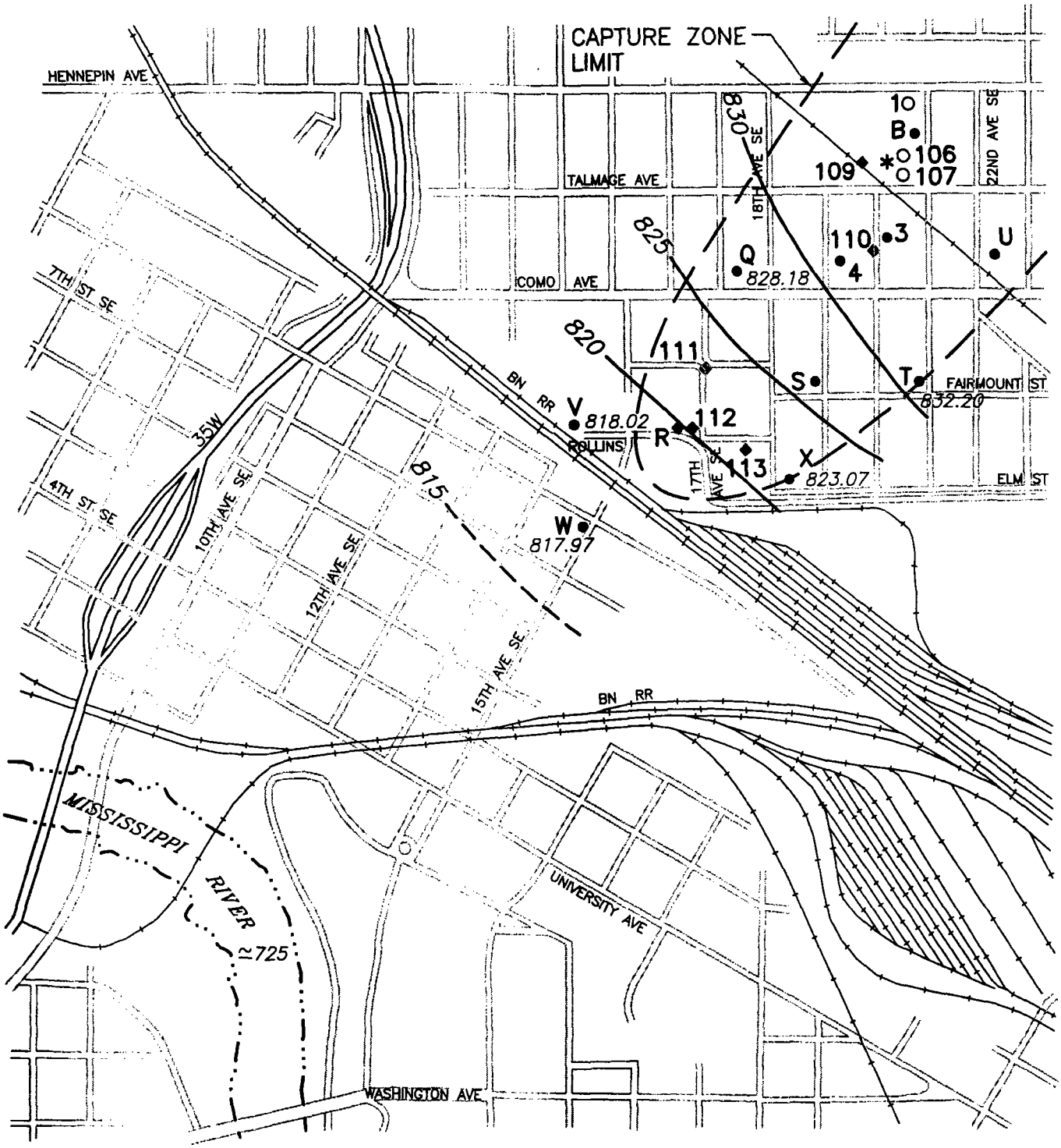
EAST HENNEPIN AVENUE
SITE MAP



- ● GLACIAL DRIFT MONITORING WELL
- ◆ SITE AND DOWNGRADIENT GLACIAL DRIFT PUMP-OUT WELL
- ■ ST. PETER SANDSTONE MONITORING WELL
- ✱ FORMER DISPOSAL SITE
- ▲ CARIMONA MEMBER MONITORING WELL
- ⊕ MAGNOLIA MEMBER MONITORING WELL
- ⊙ MAGNOLIA MEMBER PUMP-OUT WELL
- ○ WELL ABANDONED 2003

Figure 4

SITE MONITORING WELL LOCATIONS



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- ● GLACIAL DRIFT MONITORING WELL
- ◆ SITE AND DOWNGRADIENT GLACIAL DRIFT PUMP-OUT WELL
- 817.44 GLACIAL DRIFT WATER TABLE ELEVATION (MSL)
- —820— GLACIAL DRIFT WATER TABLE CONTOUR (MSL)
- — — — CAPTURE ZONE
- * FORMER DISPOSAL SITE
- o WELL ABANDONED 2003

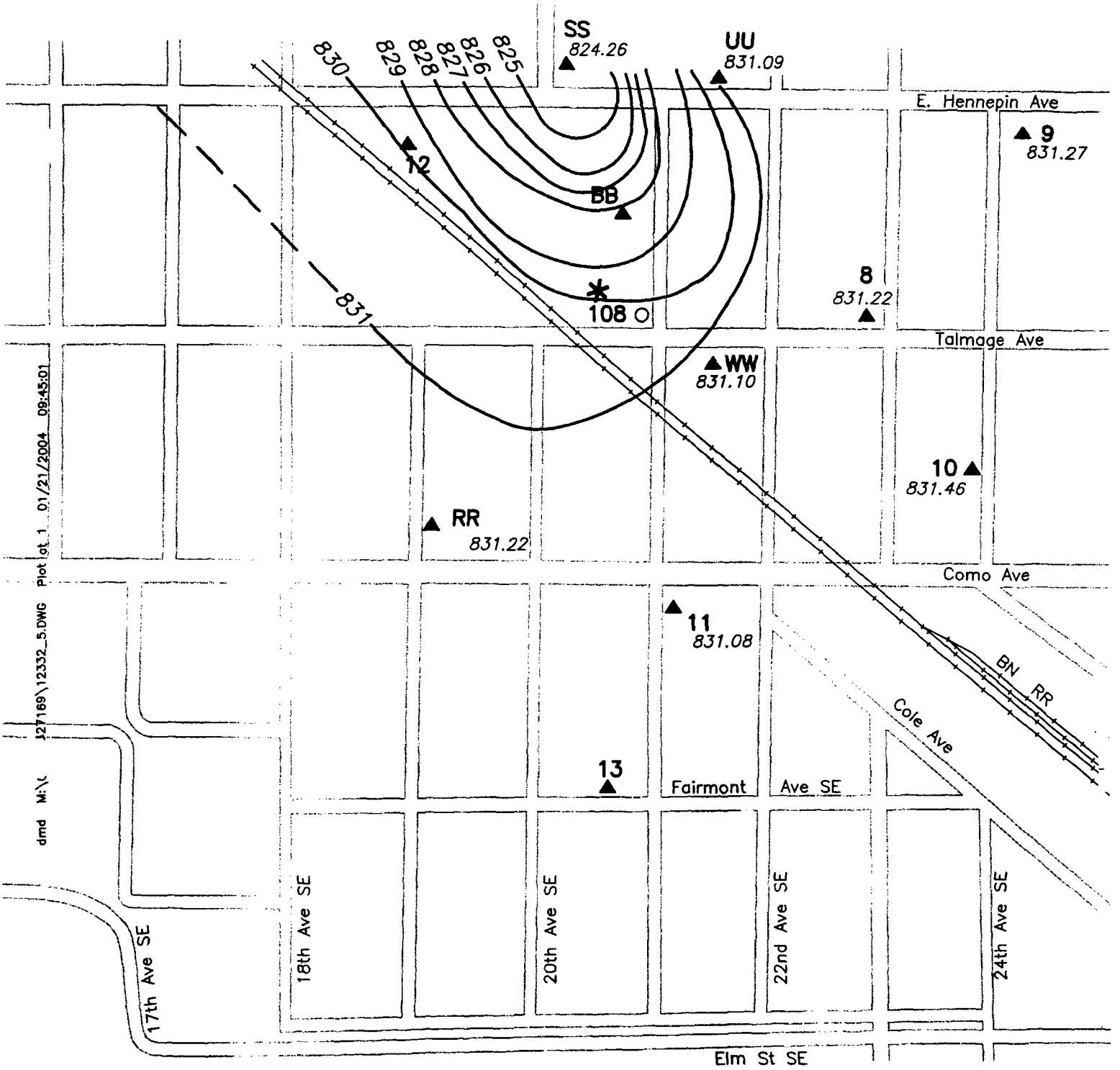
N

0 1000 2000

SCALE IN FEET

Figure 5

GLACIAL DRIFT AQUIFER
WATER TABLE ELEVATIONS
October 27, 2003



▲ CARIMONA MEMBER MONITORING WELL

830.44 CARIMONA POTENTIOMETRIC SURFACE ELEVATION (MSL)

—828— CARIMONA POTENTIOMETRIC SURFACE CONTOUR (MSL)

✱ FORMER DISPOSAL SITE

O WELL ABANDONED 2003

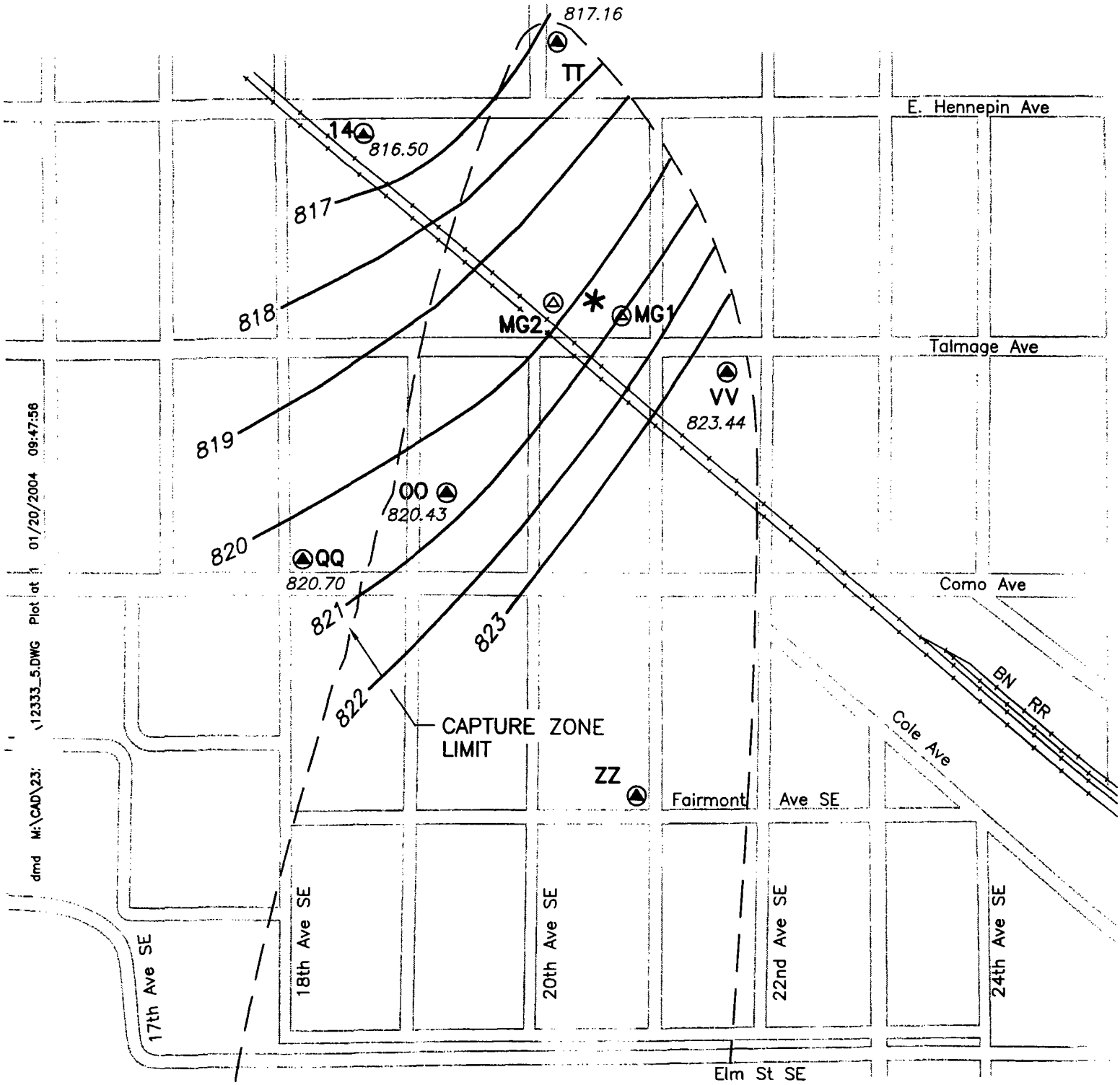
N

0 400 800

SCALE IN FEET

Figure 6

CARIMONA MEMBER
POTENTIOMETRIC SURFACE ELEVATIONS
October 27, 2003



MAGNOLIA MEMBER MONITORING WELL

MAGNOLIA MEMBER PUMP–OUT WELL

819.93 MAGNOLIA MEMBER POTENTIOMETRIC SURFACE ELEVATIONS (MSL)

820 MAGNOLIA MEMBER SURFACE POTENTIOMETRIC SURFACE CONTOUR (MSL)

CAPTURE ZONE

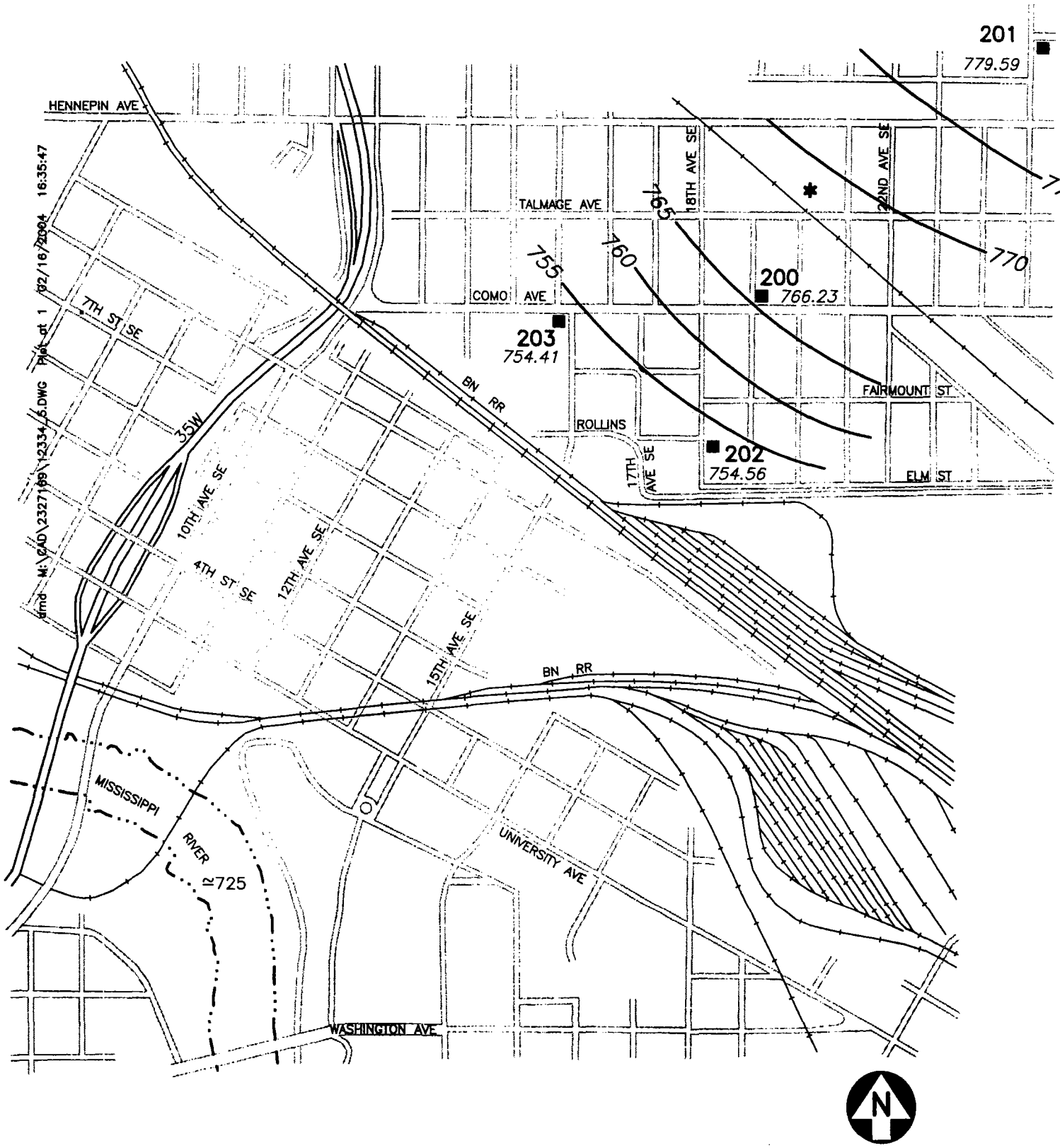
FORMER DISPOSAL SITE

0 400 800

SCALE IN FEET

Figure 7

MAGNOLIA MEMBER
POTENTIOMETRIC SURFACE ELEVATIONS
October 27, 2003



■ ST. PETER SANDSTONE MONITORING WELL

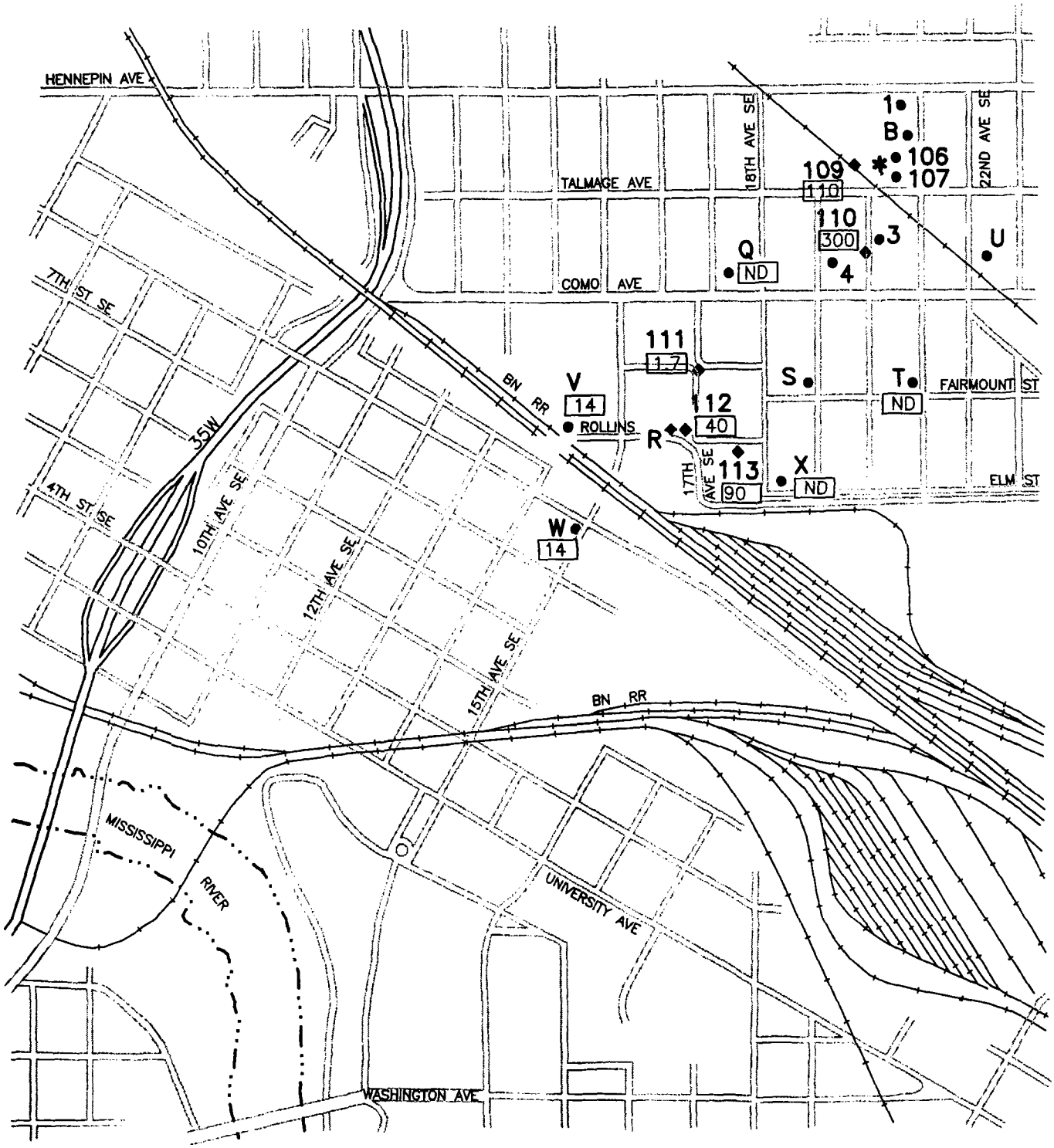
754.08 ST. PETER SANDSTONE POTENTIOMETRIC SURFACE ELEVATION (MSL)

—*760*— ST. PETER SANDSTONE POTENTIOMETRIC SURFACE CONTOUR (MSL)

✱ FORMER DISPOSAL SITE

Figure 8

ST. PETER SANDSTONE
MONITORING WELL LOCATIONS AND
POTENTIOMETRIC SURFACE ELEVATIONS
October 27, 2003



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- • GLACIAL DRIFT MONITORING WELL
- ◆ SITE AND DOWNGRADIENT GLACIAL DRIFT PUMP-OUT WELL
- [1.6] TRICHLOROETHYLENE CONCENTRATION (TCE) (ug/L)
- [ND] NOT DETECTED
- ✱ FORMER DISPOSAL SITE

N

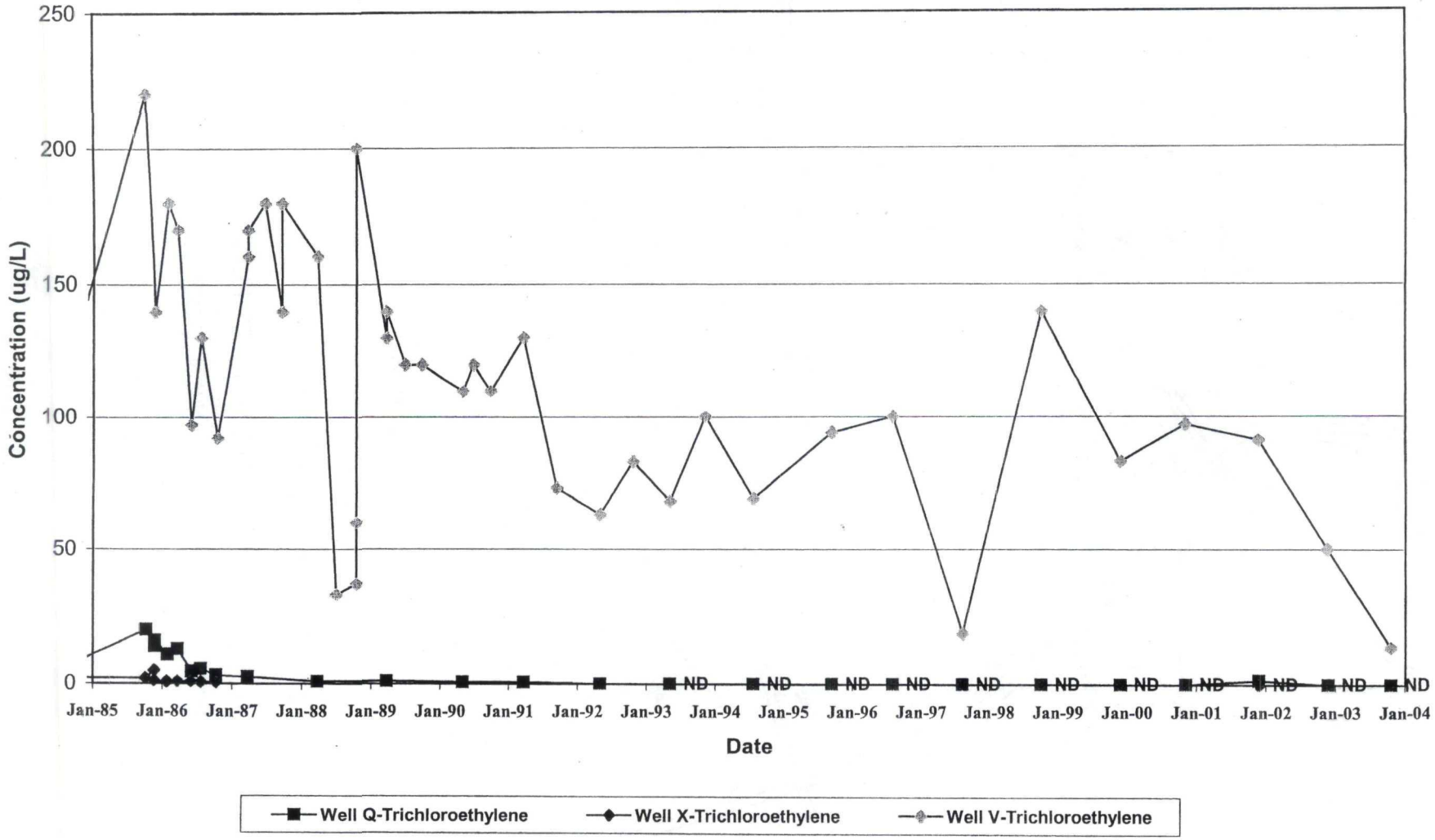
0 1000 2000
SCALE IN FEET

NOTE: INDIVIDUAL ANALYTICAL RESULTS FOR PUMP-OUT WELLS ARE TAKEN FROM AUG. 2003.

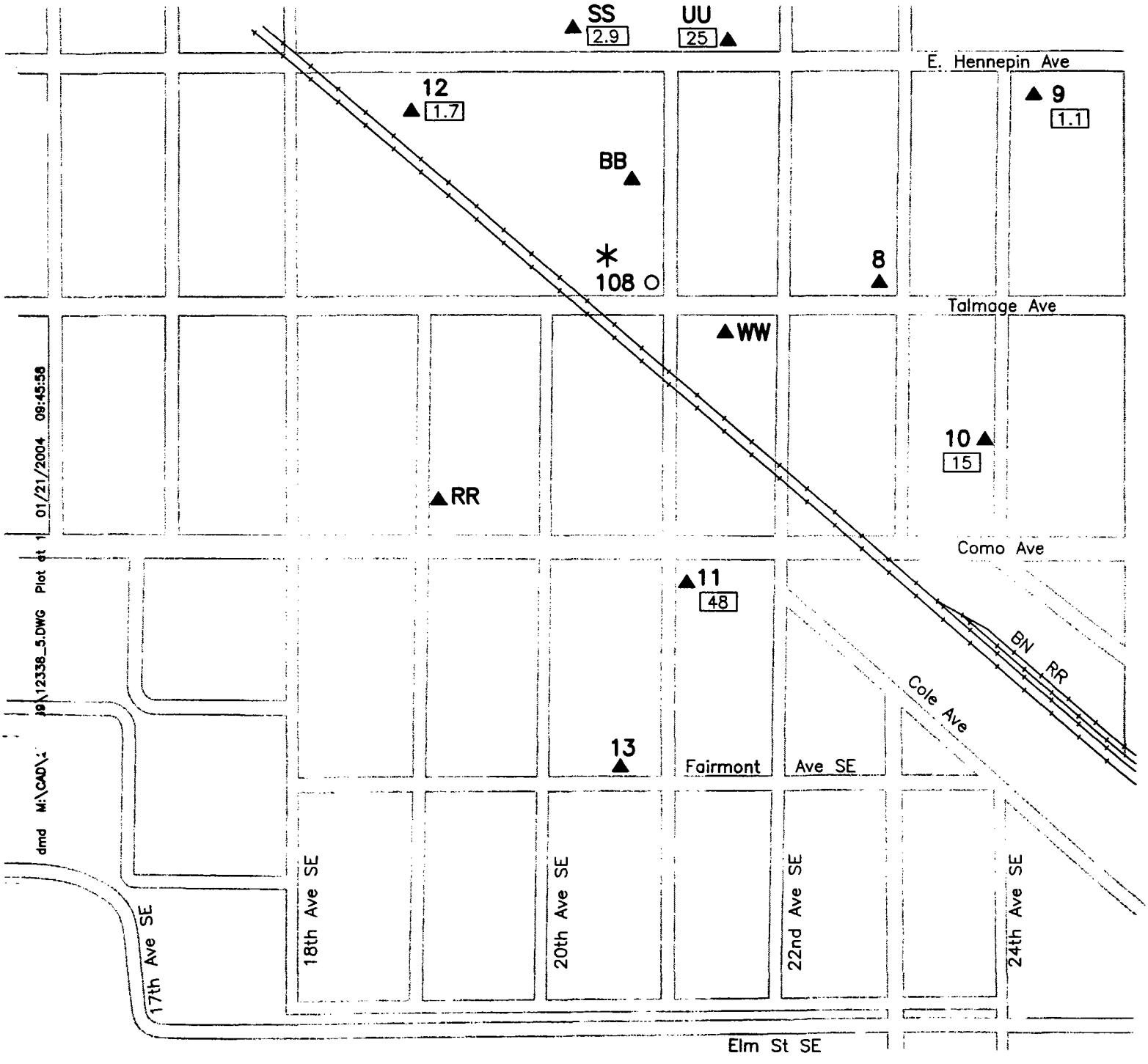
Figure 9

GLACIAL DRIFT
GROUNDWATER QUALITY (TCE)
October 2003

Figure 10
Glacial Drift Wells
TCE Concentrations
1985-2003



1/15/2004 12:07 PM
P:\23\27\169\LIMS\2003 annual\5_2003_CHARTS glacial



N

0 400 800

SCALE IN FEET

▲ CARIMONA MEMBER MONITORING WELL

[57] TRICHLOROETHYLENE CONCENTRATION (TCE) (ug/L)

[ND] NOT DETECTED

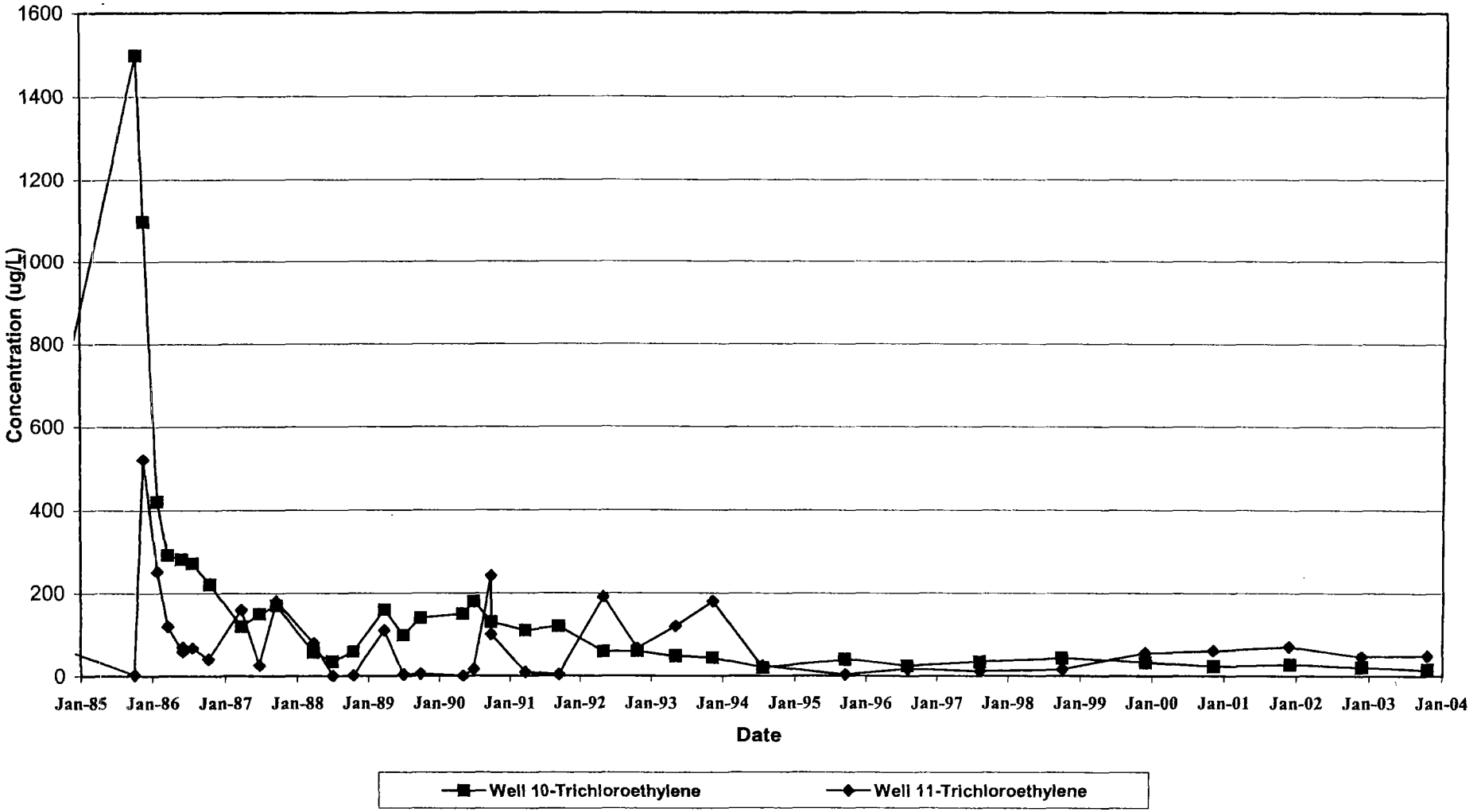
* FORMER DISPOSAL SITE

O WELL ABANDONED IN 2003

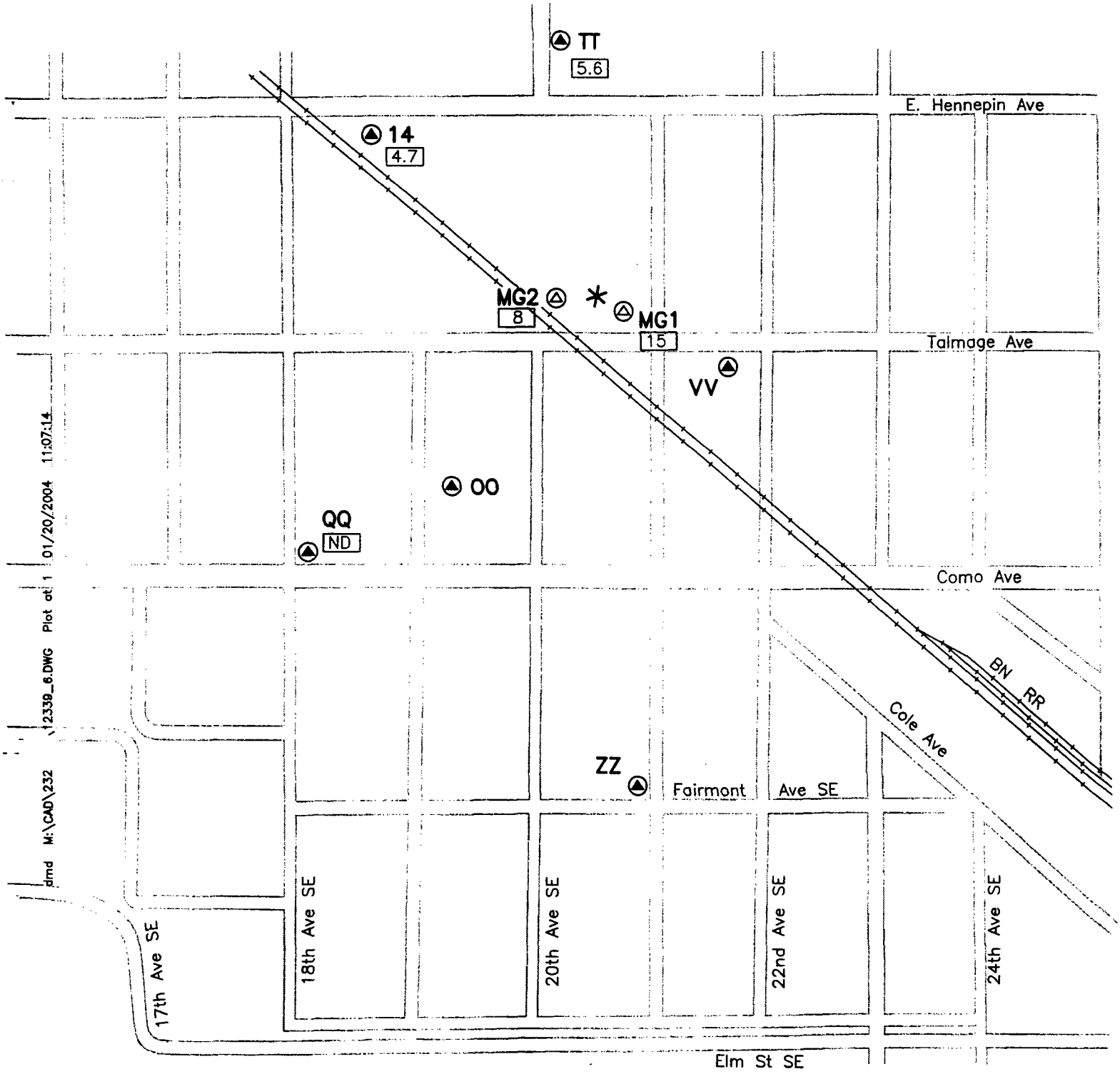
Figure 11

CARIMONA MEMBER
GROUNDWATER QUALITY (TCE)
October 2003

Figure 12
Carlmona Member Wells
TCE Concentrations
1985-2003



1/15/2004 12:07 PM
P:\23\27\169\LIMS\2003 annual\5_2003_CHARTS Carimona



MAGNOLIA MEMBER MONITORING WELL

MAGNOLIA MEMBER PUMP-OUT WELL

8.4 TRICHLOROETHYLENE CONCENTRATION (TCE) (ug/L)

ND NOT DETECTED

* FORMER DISPOSAL SITE

NOTE: INDIVIDUAL ANALYTICAL RESULTS FOR PUMP-OUT WELLS ARE TAKEN FROM AUG. 2003.

N

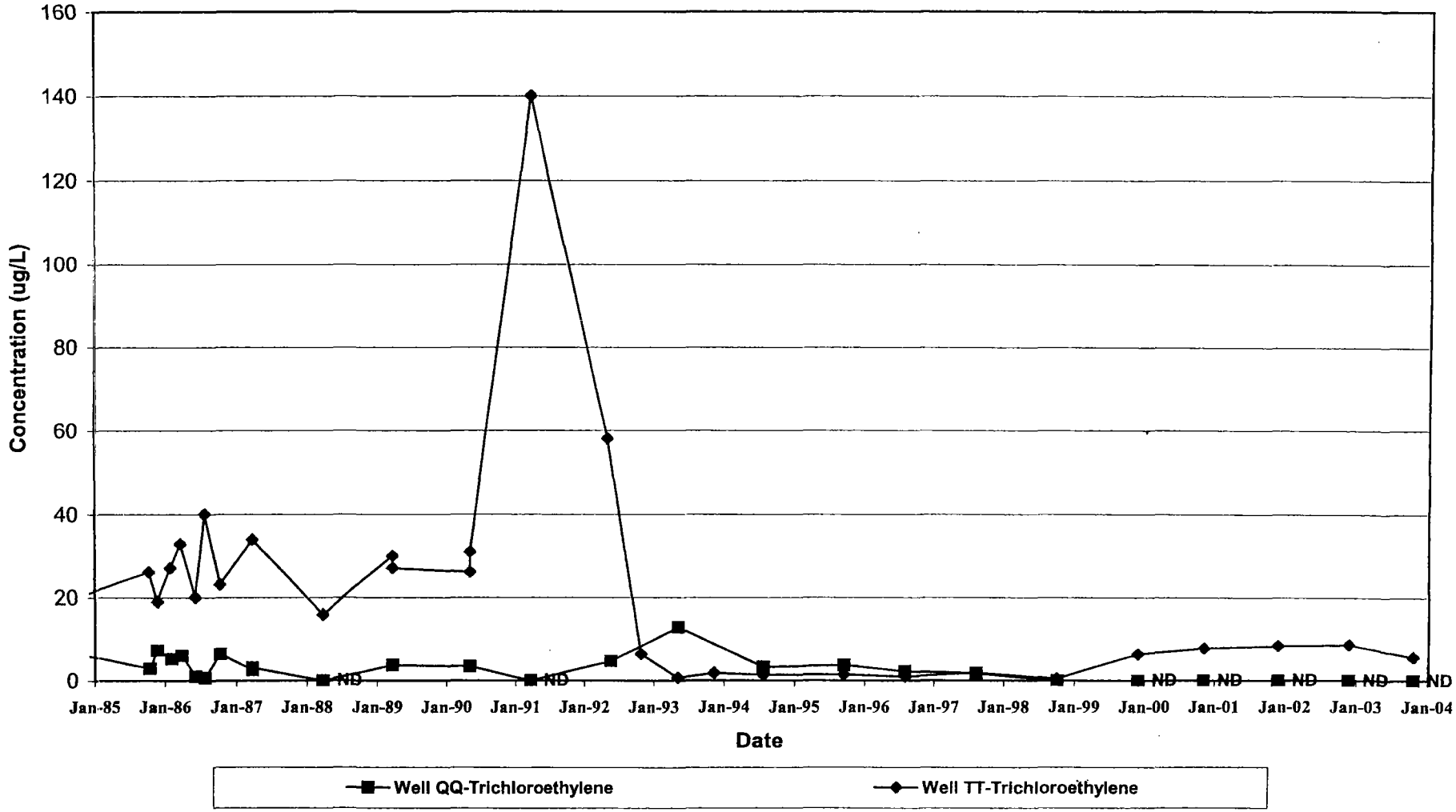
0 400 800

SCALE IN FEET

Figure 13

MAGNOLIA MEMBER
GROUNDWATER QUALITY (TCE)
November 2002

Figure 14
Magnolia Member Wells
TCE Concentrations
1985-2003



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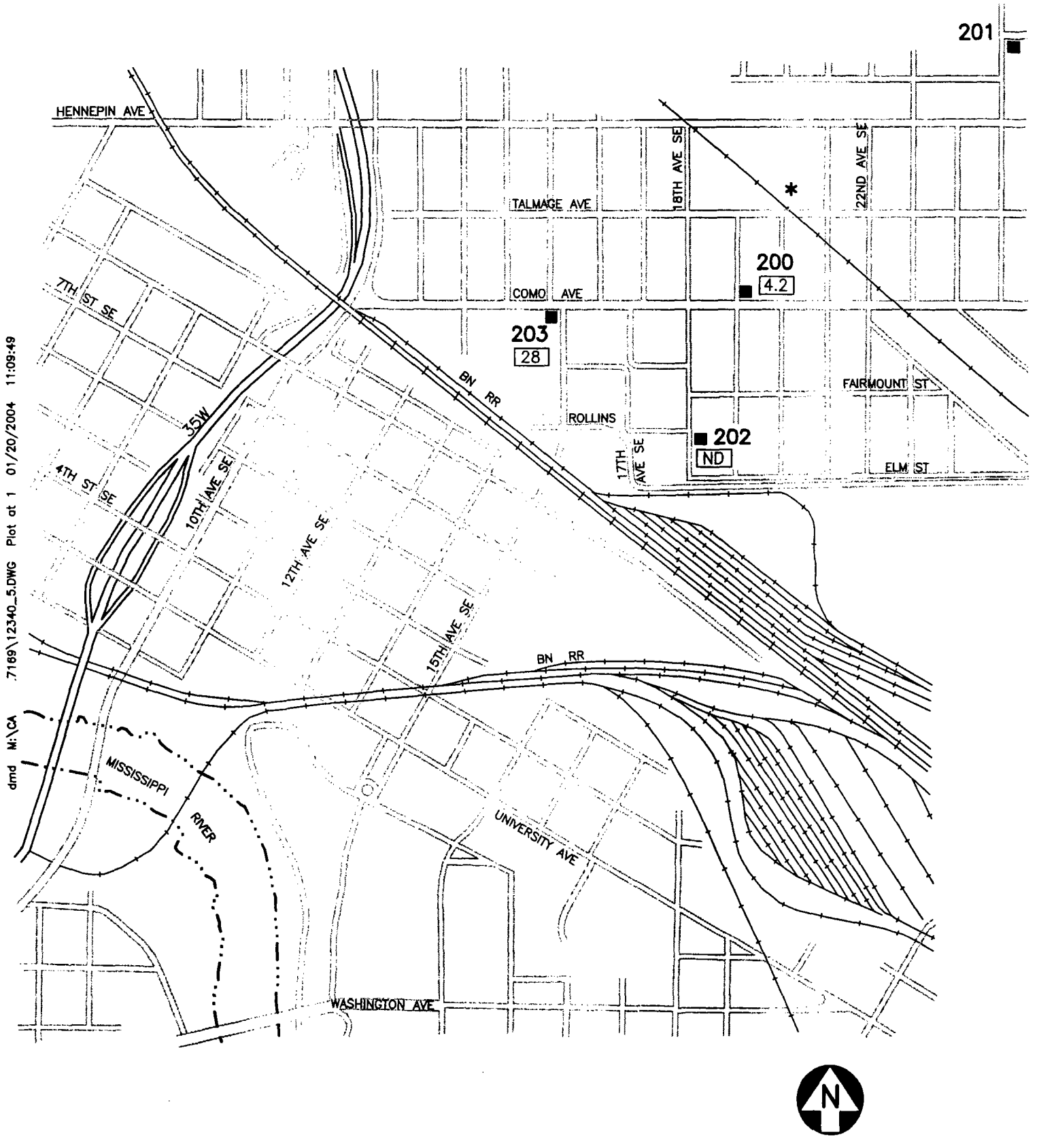
P:\23\27\169\LIMS\2003 annual\5_2003_CHARTS Magnolia



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■ ST. PETER SANDSTONE MONITORING WELL

6.4 TRICHLOROETHYLENE CONCENTRATION (TCE) (ug/L)

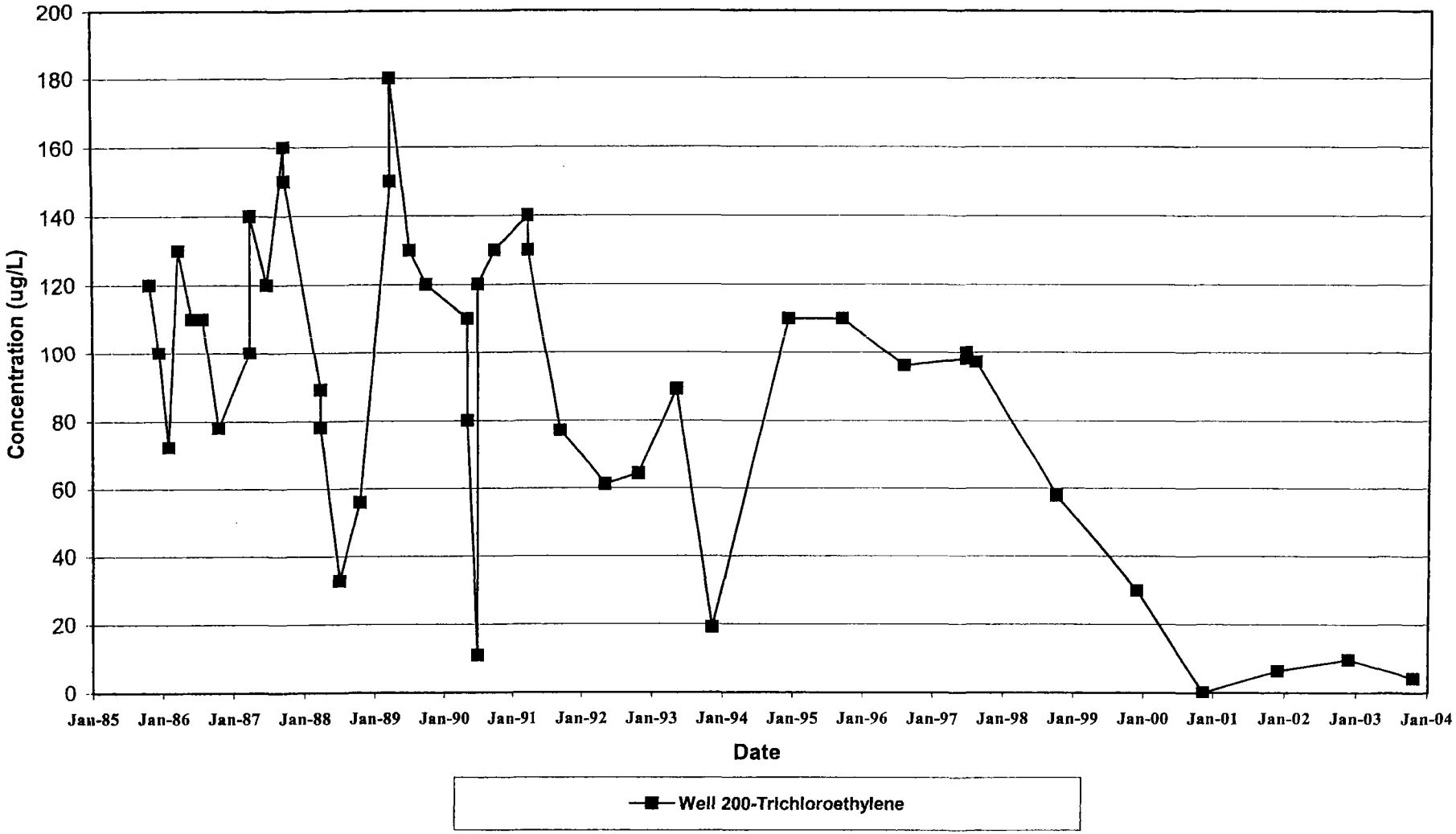
ND NOT DETECTED

* FORMER DISPOSAL SITE

Figure 15

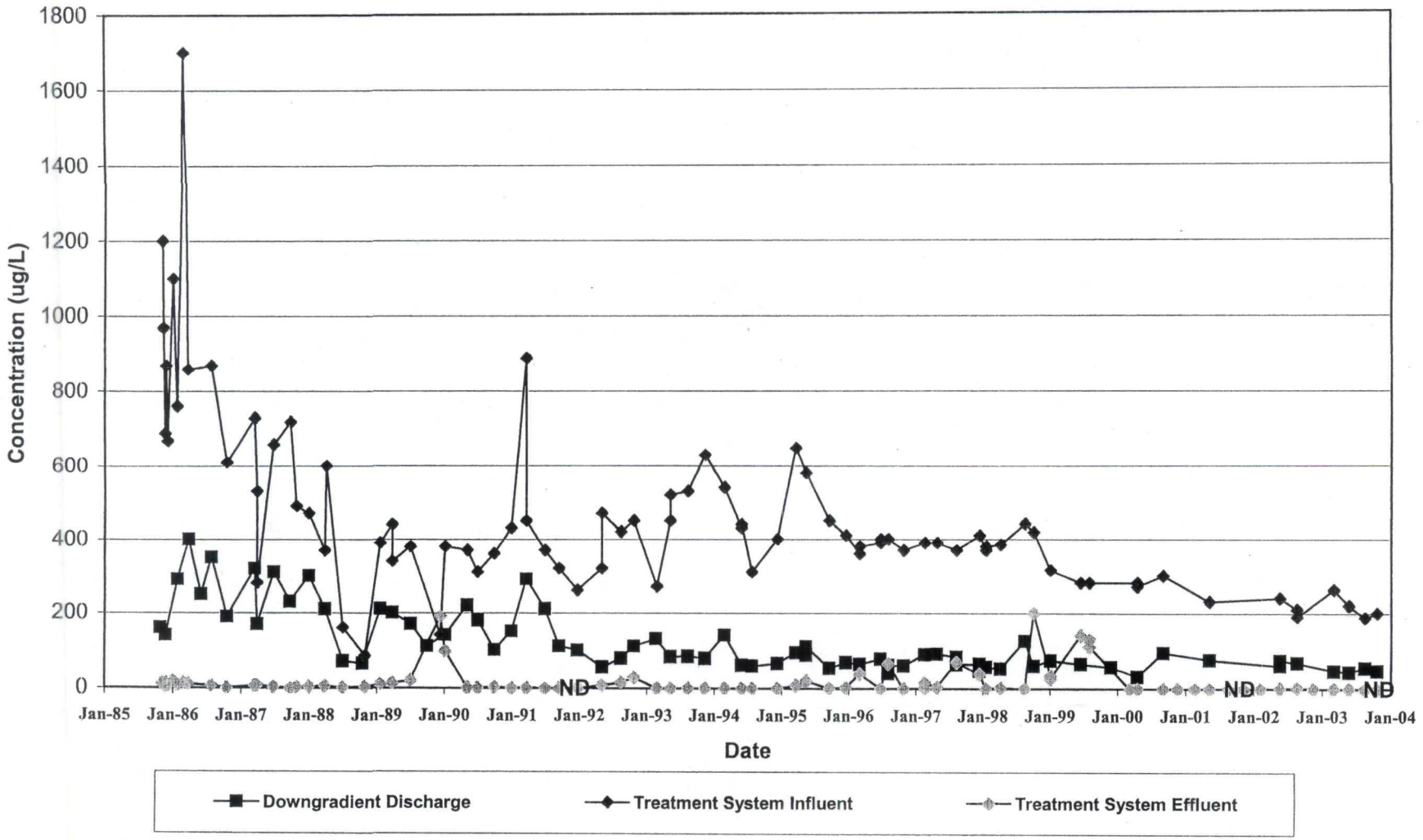
ST PETER SANDSTONE
GROUNDWATER QUALITY (TCE)
November 2002

Figure 16
St. Peter Sandstone Wells
TCE Concentrations
1985-2003



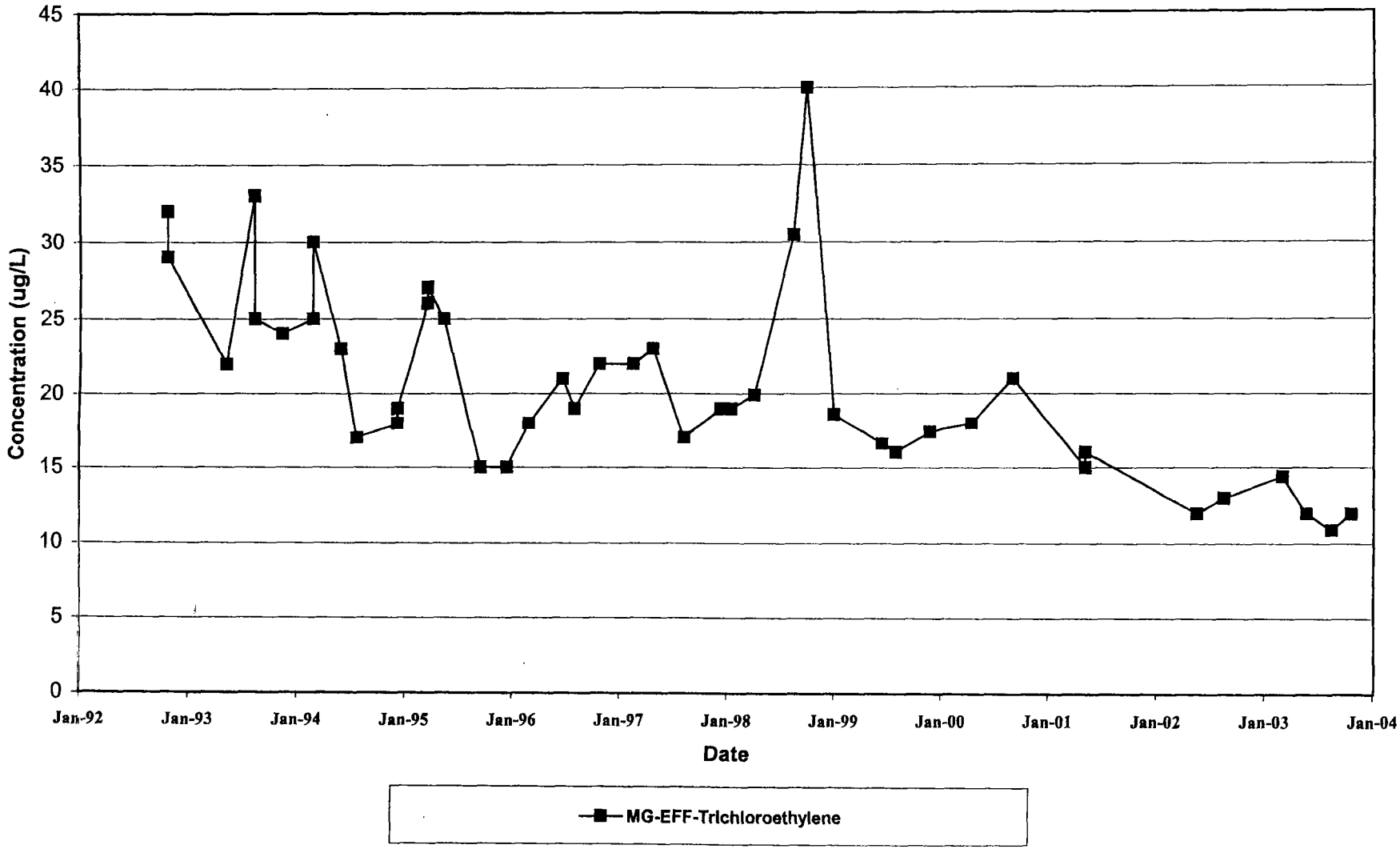
1/15/2004 12:08 PM
P:\23\27\169\LIMS\2003 annual\5_2003_CHARTS St. Peter

Figure 17
Trichloroethylene in Glacial Aquifer Pump-Out Systems
1985-2003



1/15/2004 12:08 PM
P:\23\27\169\LIMS\2003 annual\5_2003_CHARTS Glacial Pumpout

Figure 18
Magnolia Pump-Out Wells (MG1 and MG2)
TCE Concentrations
1992-2003



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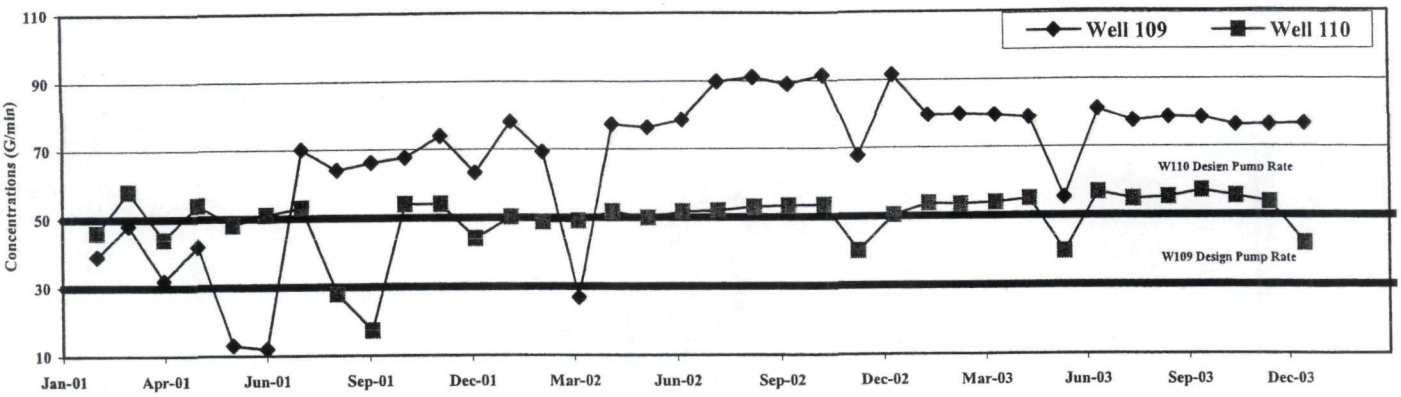
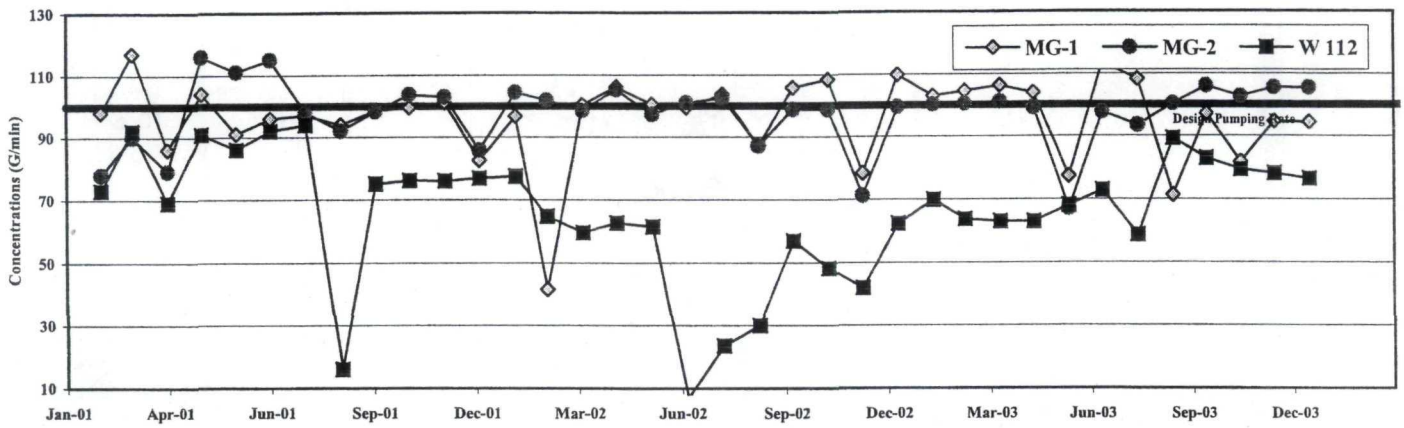
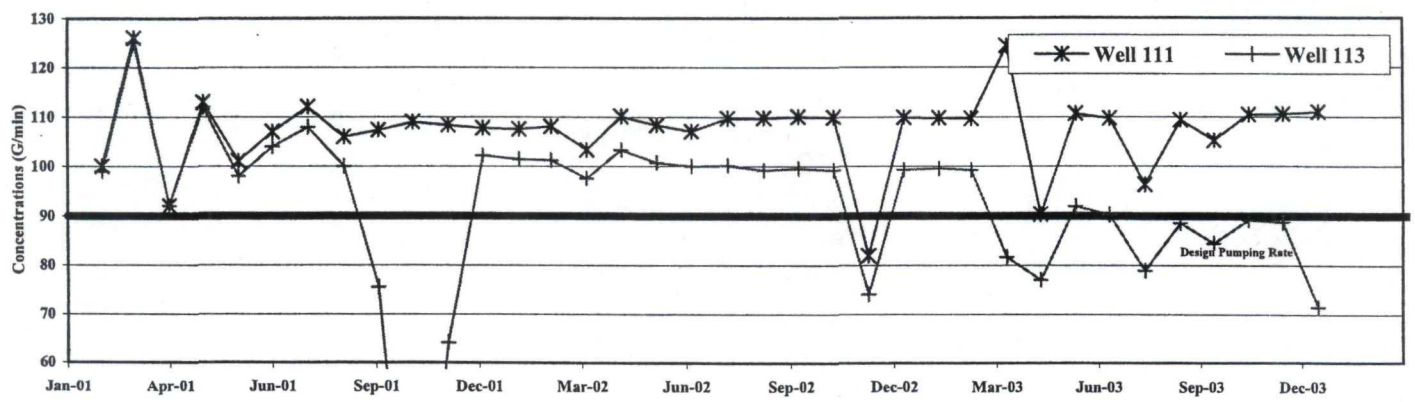
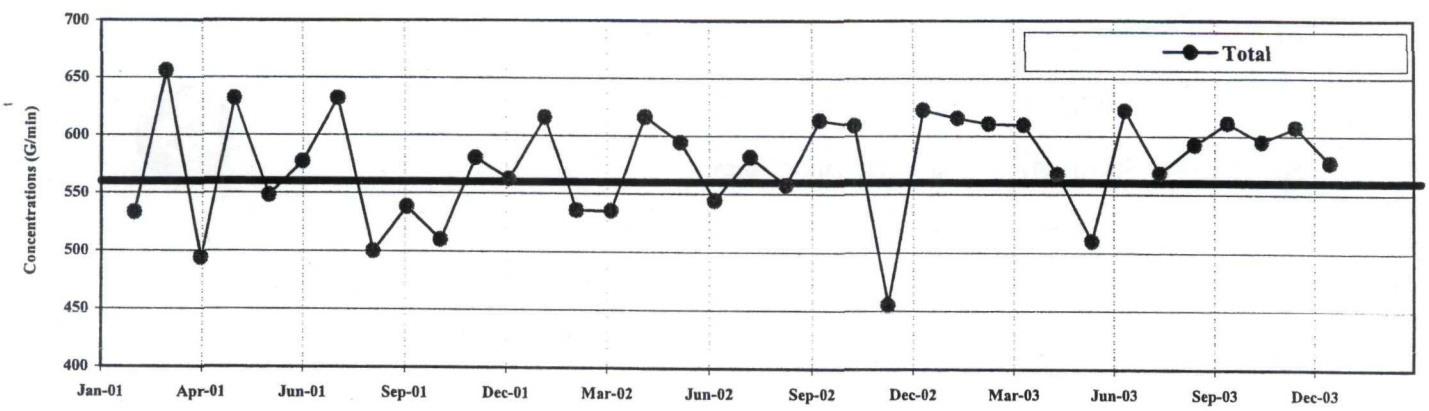
General Mills Flow Data



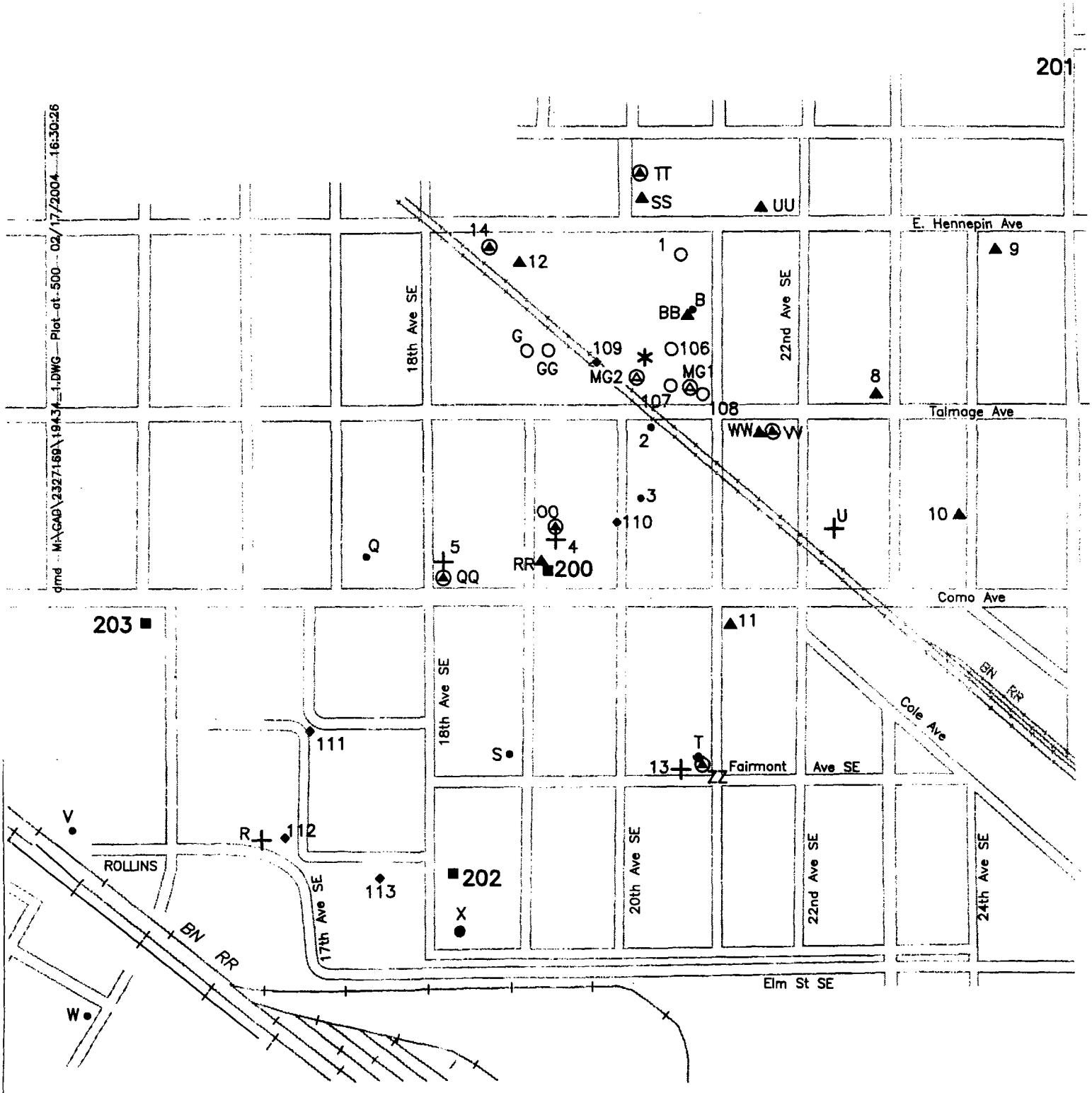






2/17/2004 4:28 PM
P:\23\27\169\Flows\New 2003 Flows.xls

Figure 19
2003 Pumping Rates
Over Time



- GLACIAL DRIFT MONITORING WELL
- SITE AND DOWNGRADIENT GLACIAL DRIFT PUMP–OUT WELL
- ST. PETER SANDSTONE MONITORING WELL
- FORMER DISPOSAL SITE
- CARIMONA MEMBER MONITORING WELL
- MAGNOLIA MEMBER MONITORING WELL
- MAGNOLIA MEMBER PUMP–OUT WELL
- WELL ABANDONED 2003
- PROPOSED FOR ABANDONMENT IN 2004

N

0 500 1000
SCALE IN FEET

Figure 20
PROPOSED WELL ABANDONMENTS FOR 2004

Appendices

Appendix A

East Hennepin Avenue Site, 2000-2005 Operations and Monitoring Plan

Appendix A

East Hennepin Avenue Site
2000–2005 Operations and Monitoring Plan

The following monitoring plan governs the period January 1, 2000 to December 31, 2005. The plan is consistent with the terms of the Consent Order, and is suitable for a site with a status characterized as long-term operation and monitoring.

Intensive monitoring of the East Hennepin Avenue Site has occurred since February 1984. The results from this monitoring have defined the limits of groundwater contamination; have documented the effectiveness of the site groundwater pump-out systems; and have documented that site conditions in all affected aquifers have been stable since 1987.

The Consent Order specifies that the purpose of the groundwater monitoring program is to: monitor the effectiveness of the groundwater pump-out systems; define changes in the distribution of volatile hydrocarbon concentrations; and determine when operation of the system can be shut down.

The effectiveness of groundwater pump-out systems has been determined through aquifer pumping tests and groundwater modeling. The operational history (pumping rates and total gallons pumped) has been monitored since 1985. This time period includes both record wet and record dry years.

General Mills, Inc. has agreed to monitor the continued effectiveness of the pump-out systems through water quality monitoring and through operational monitoring. Water quality monitoring, including sample collection and analysis and water level measurement, will involve the annual collection of groundwater samples from down gradient Glacial Drift wells Q, T, V, W and X; Platteville wells 9, 10, 11, 12, 14, QQ, SS, TT and UU; St. Peter Well 200 and the Henkel Well. The samples will be analyzed on alternating years for trichloroethylene and List 2 volatile organic compounds (Table A-1). Well 8 will no longer be monitored because it is downgradient from wells 9 and 10 and is upgradient of wells SS and UU. Additionally, samples will be collected annually from St. Peter wells 202 and 203 and analyzed for TCE. Water levels will continue to be measured at Well 201 but no samples will be collected for analysis at this location.

Operational monitoring will involve the comparison of monthly mean pumping rates with historic pumping rates. If pumping rates fall below an action level (Table A-2), an assessment of the operational status of the well will be conducted and necessary repairs will be made.

Platteville Formation pump-out system operational monitoring will also include an annual 24-hour recovery test. This test will be conducted to determine if Magnolia member pump-out wells MG1 and MG2 are maintaining an adequate capture zone in the Platteville Formation. The recovery test will involve the measurement of water levels in wells RR, SS, VV, OO, TT and WW. Water levels will be measured prior to and 24 hours after an annual shutdown of pump-out wells MG1 and MG2. The data will be evaluated to determine if the Magnolia wells continue to generate similar drawdown as was observed during the 1992 pumping test.

NPDES monitoring will continue as specified in the permit. NPDES monitoring currently involves the collection of effluent water quality samples from each pump-out system and the stripper tower. ~~In addition to trichloroethylene and List 2 volatile organic compounds, priority pollutant volatile organic compounds and flow rate measurements are required on a routine basis.~~ Table A-1 lists the monitoring parameters required by the new May 11, 2000 NPDES permit.

Quarterly letter reports describing the results of operations, monitoring and maintenance will be prepared and submitted to the Minnesota Pollution Control Agency. The reports will contain tables summarizing operational and monitoring data. Laboratory data reports will be attached to the report. Any data which indicates a long-term change in the operational status or effectiveness of the pump-out systems will be discussed in detail. A description of any action taken in response to this information will also be documented.

Table A-1

Monitoring Parameters
(Modified in 2001)

Monitoring Wells Even Years	Monitoring Wells Odd Years (List 2)	NPDES Stations
Water levels and field data	Water Levels and field data	Flows pH
Trichloroethylene	1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene, cis 1,2-Dichloroethene, trans 1,1,2,2-Tetrachloroethane Tetrachloroethylene 1,1,1-Trichloroethane Trichloroethylene Vinyl Chloride Benzene Ethylbenzene(1) Toluene Xylenes	1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene, cis 1,2-Dichloroethene, trans 1,1,2,2-Tetrachloroethane Tetrachloroethylene 1,1,1-Trichloroethane Trichloroethylene Benzene Ethylbenzene(1) Toluene Xylenes

(1) Added in 2001 at request of MPCA

Table A-2

Pump-out System Operation Guidelines
Pumping Rates

Pump-out Well Identification	Target Pumping Rate (Average Monthly gpm)	Action Level (Average Monthly gpm)
Well 109	30	20
Well 110	50	40
Well 111	90	80
Well 112	100	80
Well 113	90	80
Well MG1	100	80
Well MG2	100	80

If action levels are not met, an assessment of the operational status of the pump-out well will be undertaken and any necessary repairs will be made.

Appendix B

Field Sampling Report and Laboratory Data Reports

BARR

FIELD SAMPLING REPORT

Date: November 24, 2003

Project: General Mills

Contact: Bill Bangsund
Barr Engineering Company
4700 W. 77th Street
Minneapolis, MN 55435-4803

Field Sampling

Annual groundwater monitoring at the General Mills site was conducted on October 27th to 31st, 2003. The Platteville Formation pumpout system recovery test was completed on October 27th and 28th, 2003.

Field Report

Attachments:

- Field Log Cover Sheet
- Water Level Summary
- Field Log Data Summary
- Pumpout System Recovery Test
- Field Log Data Sheets
- Meter Calibration Summary
- Chain-of-Custodies #17458 and #16559

Laboratory Analysis Status

Samples sent to Trimatrix, Grand Rapids, Michigan for analysis. Refer to chain-of-custodies and parameter table for specific laboratory analyses.

Kirk Johannessen
Water Quality

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BARR

FIELD LOG COVER SHEET
WATER SAMPLING

Client: General Mills

Project No.: 23/27-169 YO3 1002

Technician: KSJ

Sampling Period: October 27, 28, 29, 30, 31, 2003

Date	Temperature	Wind Speed	Wind Direction	Cloud Cover

Summary of Field Activities

- Water levels were measured on October 27, 2003.
- Blind duplicate sample M-1 was collected at Well 10. A field blank was collected in the stripper tower on October 31.
- The 24-hour recovery test was performed on October 27 and 28, 2003.
- Fourth quarter pumpout system well-specific samples were collected on October 31, 2003.

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WATER LEVEL SUMMARY

Project: GENERAL MILLS
Project Number: 23/27-169YO3
Field Staff: KSJ Date: 10-27-03

Monitoring Location	Measuring point elevation	Water level depth	Total well depth	Static water elevation	Comments
109	857.97	28.95		829.02	TOC
110	852.35	24.40		827.95	
111	846.94	29.26		817.68	
112	841.37	33.50		807.87	
113	841.26	22.20		819.06	
Q	850.38	22.20	25.5	828.18	
T	849.36	16.86	24.0	832.50	
V	838.59	20.57	27.5	818.02	
W	830.78	12.81	19.0	817.97	
X	842.90	19.83	21.0	823.07	
8	860.36	29.14	64.0	831.22	
9	862.48	31.21	63.0	831.27	
10	860.39	28.93	64.0	831.46	
11	852.84	21.76	54.0	831.08	
12	861.10	35.68	63.0	825.42	
RR	849.97	18.75	50.5	831.22	
SS	861.70	37.44	60.5	824.26	
UU	863.98	32.89	63.0	831.09	
WW	857.76	26.66	60.5	831.10	
OO	850.07	29.64	60.5	820.43	
QQ	849.01	28.31	59.5	820.70	
TT	861.94	44.78	70.0	817.16	
VV	859.09	35.65	70.5	823.44	
200	851.14	84.91	198.0	766.23	
MG-1	860.81	55.84		804.97	TOC
MG-2	859.82	51.47		808.35	TOC
201	885.09	105.50	144.0	779.59	
203	850.05	95.64	118.0	754.41	
202	843.45	88.89	116.0	754.56	
14	858.53	42.03	68.5	816.50	

WATER LEVEL SUMMARY

Project: GENERAL MILLS

Project Number: 23/27-169YO2

Date: 10-27-03

Field Staff: KSJ

Monitoring Location	Measuring point elevation	Water level depth	Total well depth	Static water elevation	Comments
109	857.97	28.95		--	TOC
110	852.35	24.40		--	
111	846.94	29.26		--	
112	841.37	33.50		--	
113	841.26	22.20		--	
Q	850.38	22.20	25.5	--	
T	849.36	16.86	24.0	--	
V	838.59	20.57	27.5	--	
W	830.78	12.81	19.0	--	
X	842.90	19.83	21.0	--	
8	860.36	29.14	64.0	--	
9	862.48	31.21	63.0	--	
10	860.39	28.93	64.0	--	
11	852.84	21.76	54.0	--	
12	861.10	38.68	63.0	--	
RR	849.97	18.75	50.5	--	
SS	861.70	37.44	60.5	--	
UU	863.98	32.89	63.0	--	
WW	857.76	26.66	60.5	--	
OO	850.07	29.64	60.5	--	
QQ	849.01	28.31	59.5	--	
TT	861.94	44.78	70.0	--	new lock
VV	859.09	35.65	70.5	--	
200	851.14	84.91	198.0	--	
MG-1	860.81	55.84		--	TOC
MG-2	859.82	51.47		--	TOC
201	885.09	105.50	144.0	--	
203	850.05	95.64	118.0	--	
202	843.45	88.89	116.0	--	
14	858.53	42.03	68.5	--	
13		18.42			
S		20.23			
5		20.73			

WATER LEVEL SUMMARY

Platville formation 24-hour recovery test

Project: General Mills

Project Number: 2327169

Field Staff: KSJ

		Date: 10/27/03	Date: 10/28/03	Date: 10/27/03	Date: 10/28/03	
Monitoring Location	Measuring point elevation	Water level	Water level	Static elevation	Static elevation	Recovery
RR	849.97	18.75	16.45	831.22	833.52	2.30
SS	861.70	37.44	32.57	824.26	829.13	4.87
WW	857.76	26.66	24.35	831.10	833.41	2.31
OO	850.07	29.64	21.55	820.43	828.52	8.09
TT	861.94	44.78	35.08	817.16	826.86	9.70
VV	859.09	35.65	29.46	823.44	829.63	6.19
MG 1	860.81	55.84	32.29	804.97	828.52	23.55
MG 2	859.82	51.47	31.36	808.35	828.46	20.11

* Measurements are referenced from top of riser pipe, unless otherwise indicated.

WLSUMM.WB2

WATER LEVEL SUMMARY

Platville formation 24-hour recovery test

Project: General Mills

Project Number: 2327169

Date: 10-27-03

Environmental Technician: KSJ

Monitoring Location	Measuring point elevation	Water level Pumps on	Water level Pumps off	Static elevation	Static elevation	Recovery
RR	849.97	18.75	16.45	--	--	0.00
SS	861.70	37.44	32.57	--	--	0.00
WW	857.76	26.66	24.35	--	--	0.00
OO	850.07	29.64	21.55	--	--	0.00
TT	861.94	44.78	35.08	--	--	0.00
VV	859.09	35.65	29.46	--	--	0.00
MG 1	860.81	55.84	32.29	--	--	0.00
MG 2	859.82	51.47	31.36	--	--	0.00

* Measurements are referenced from top of riser pipe, unless otherwise indicated.

WLSUMM.WB2

FIELD DATA SUMMARY

Project: GENERAL MILLS

Project number: 23/27-169Y03102

Field Staff: KSJ

Monitoring location	Date	Temp (oC)	Conductivity @ 25 oC	Dissolved Oxygen (mg/l)	pH	Eh (mV)
EFF	10/31/03	10.6	1299	7.33	7.82	26
109	"	12.2	1027	7.59	7.29	44
110	"	12.5	1202	5.97	7.11	54
MG-1	"	11.5	837	7.32	7.52	44
MG-2	"	11.1	832	7.30	7.25	48
111	"	12.0	1021	6.47	7.02	26
112	"	12.3	1058	5.25	6.94	33
113	"	11.7	1093	8.36	7.02	43

FIELD DATA SUMMARY

Project: GENERAL MILLS

Project number: 23/27-169Y01102

Field Staff: KSJ

Monitoring location	Date	Temp (oC)	Conductivity @ 25 oC	Dissolved Oxygen (mg/l)	pH	Eh (mV)
EFF	10-31-03	10.6	1299	7.33	7.82	26
109	"	12.2	1027	7.59	7.29	44
110	"	12.5	1202	5.97	7.11	54
MG-1	"	11.5	837	7.32	7.52	44
MG-2	"	11.1	832	7.30	7.25	48
111	"	12.0	1021	6.47	7.02	26
112	"	12.3	1058	5.25	6.94	33
113	"	11.7	1093	8.36	7.02	43

FIELD DATA SUMMARY

Project: GENERAL MILLS

Project number: 23/27-169

Field Staff: KSJ

Monitoring location	Date	Temp (oC)	Conductivity @ 25 oC	pH	Eh (mV)	Dissolved Oxygen (mg/L)
11	10/28/03	11.4	898	6.62	29	0.17
SS	"	11.4	861	6.77	19	0.33
TT	"	12.0	851	6.68	33	0.12
14	"	12.1	975	6.96	-18	0.12
12	"	9.8	492	8.80	-39	0.79
UU	10/29/03	11.5	1087	6.69	65	0.14
Q	"	13.3	1157	6.61	65	4.40
QQ	"	10.4	636	6.87	-21	1.57
T	"	13.9	852	6.77	44	1.21
X	"	13.7	1193	6.41	59	6.13
V	"	17.0	401	7.47	27	0.73
W	"	14.4	1338	6.54	46	0.73
9	10/30/03	12.8	1442	7.07	14	0.34
10	"	12.7	1159	7.44	-40	0.17
202	"	13.0	612	7.04	45	3.51
200	"	6.9	567	7.16	8	1.97
203	10/31/03	11.9	601	7.40	24	4.15
Henkel	"	10.7	490	8.10	29	7.25

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: 11
Location: MPLS	Date: 10-28-03
Project #: 23/27-169/03	Sample Time: 1000

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	4	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	54	0917/63g.	11.5	1052	6.78	46	0.19	Slightly cloudy
Static water level:*	21.76	0931/84g.	11.5	962	6.68	36	0.24	clear
Water depth:*	32.2	0945/105g.	11.4	916	6.65	32	0.19	clear
Well volume: (gal)	21	0959/126g.	11.4	898	6.62	29	0.17	clear
Purge method:	1.5" SUB.							
Sample method:	bailer							
Start time:	0835	Odor: none detected						
Stop time:	0959	Purge Appearance: clear, slightly cloudy, clear						
Duration: (minutes)	84	Sample Appearance: clear						
Rate, gpm:	1.5	Comments:						
Volume, purged:	126 gal							
Duplicate collected?	—							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: SS
Location: MPLS	Date: 10-28-03
Project #: 23/27-169403102	Sample Time: 1135

GENERAL DATA	
Barr lock:	YES
Casing diameter:	2"
Total well depth:*	60.5
Static water level:*	37.44
Water depth:*	23.1
Well volume: (gal)	3.8
Purge method:	1.5" Sub.
Sample method:	bailer
Start time:	1026
Stop time:	1134
Duration: (minutes)	73
Rate, gpm:	.3
Volume, purged:	22 gal
Duplicate collected?	—
Sample collection by:	KSJ

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
1103/7.2	12.1	835	6.84	27	0.33	clear
1116/15g.	11.5	875	6.81	27	0.24	clear
1129/19g.	11.3	865	6.79	23	0.38	clear
1134/22g	11.4	861	6.77	19	0.33	clear

Odor: none detected

Purge Appearance: clear

Sample Appearance: clear

Comments:

CO2- Mn2- Fe(T)- Fe2-

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: TT
Location: MPLS	Date: 10-28-03
Project #: 23/27-169 403 102	Sample Time: 1240

GENERAL DATA	
Barr lock:	YES
Casing diameter:	2"
Total well depth:*	70
Static water level:*	44.78
Water depth:*	25.2
Well volume: (gal)	4
Purge method:	1.5" Sub.
Sample method:	bailer
Start time:	1147
Stop time:	1237
Duration: (minutes)	50
Rate, gpm:	.4
Volume, purged:	20 gal
Duplicate collected?	—
Sample collection by:	KSJ

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
1207/12g.	12.1	930	6.72	27	0.19	clear
1227/16g.	11.9	878	6.71	31	0.15	clear
1237/20g.	12.0	851	6.68	33	0.12	clear

Odor: none detected

Purge Appearance: clear

Sample Appearance: clear

Comments:

CO2- Mn2- Fe(T)- Fe2-

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client:	General Mills	Monitoring Point:	14
Location:	MPLS	Date:	10-28-03
Project #:	23/27-169403102	Sample Time:	1435

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	2"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	68.5	1353/12g	12.1	985	7.40	-54	0.34	clear
Static water level:*	42.03	1406/16g	12.0	986	7.19	-31	0.37	"
Water depth:*	26.5	1420/20g	12.0	981	7.11	-24	0.25	"
Well volume: (gal)	4	1417/24g	12.1	975	7.05	-20	0.21	"
Purge method:	1.5" sub.	1423/28g	12.1	978	6.99	-22	0.17	"
Sample method:	Bailer	1433/32g	12.1	975	6.96	-18	0.12	"
Start time:	1313	Odor: None detected						
Stop time:	1433	Purge Appearance: clear						
Duration: (minutes)	80	Sample Appearance: clear						
Rate, gpm:	3.4	Comments:						
Volume, purged:	32 gal							
Duplicate collected?	—							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR

Barr Engineering Company
Field Log Data Sheet

Client:	General Mills	Monitoring Point:	12
Location:	MPLS	Date:	10-28-03
Project #:	23/27-169 Y03102	Sample Time:	1735

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	4	Time/ Volume	Temp: °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	63	1532/80g.	9.4	499	8.71	-10	1.23	clear
Static water level:*	35.68	1632/80g.	9.6	495	8.77	-23	.97	slightly cloudy
Water depth:*	27.3	1732/60g.	9.8	492	8.80	-39	.79	"
Well volume: (gal)	21							
Purge method:	1.5" sub.							
Sample method:	bailer							
Start time:	1452	Odor:	None detected					
Stop time:	1732	Purge Appearance:	clear - slightly cloudy					
Duration: (minutes)	160	Sample Appearance:	slightly cloudy					
Rate, gpm:	1 → .1	Comments:						
Volume, purged:	100 gal							
Duplicate collected?	—							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: MW
Location: MPLS	Date: 10-29-03
Project #: 23/27-16940310Z	Sample Time: 0915

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	2"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	63.'	0840/15g.	11.4	1328	6.86	79	0.19	clear
Static water level:*	32.89	0850/20g.	11.4	1182	6.79	72	0.25	clear
Water depth:*	30	0900/25g.	11.5	1103	6.73	68	0.16	clear
Well volume: (gal)	5	0910/30g	11.5	1087	6.69	65	0.14	clear
Purge method:	1.5" sub. 0810							
Sample method:	bailer							
Start time:	0810	Odor: none detected						
Stop time:	0910	Purge Appearance: clear						
Duration: (minutes)	60	Sample Appearance: clear						
Rate, gpm:	.5	Comments:						
Volume, purged:	30 gal							
Duplicate collected?	—							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: Q
Location: MPLS	Date: 10-29-03
Project #: 23/27-1694/03102	Sample Time: 0950

GENERAL DATA	
Barr lock:	YES
Casing diameter:	2"
Total well depth:*	25.5
Static water level:*	22.20
Water depth:*	3.3
Well volume: (gal)	.5
Purge method:	1.5" sub.
Sample method:	bailer
Start time:	0928
Stop time:	0944
Duration: (minutes)	16
Rate, gpm:	.2
Volume, purged:	3.5 gal
Duplicate collected?	-
Sample collection by:	KSJ

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
0936/1.5g.	13.0	1172	6.75	90	6.68	slightly cloudy
0938/2g.	13.1	1168	6.69	74	5.08	clearing
0940/2.5g.	13.2	1165	6.65	68	4.81	clear
0942/3g.	13.3	1161	6.63	69	4.59	clear
0944/3.5g.	13.3	1157	6.61	65	4.40	clear

Odor: none detected

Purge Appearance: begin - cloudy brown / end - clear

Sample Appearance: clear

Comments:

CO2- Mn2- Fe(T)- Fe2-

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client:	General Mills	Monitoring Point:	QQ
Location:	MPLS	Date:	10-29-03
Project #:	23/27-169/03102	Sample Time:	1130

GENERAL DATA		STABILIZATION TEST						
Barr lock:	Yes							
Casing diameter:	1.25"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	59.5	1059/7g	10.3	570	6.93	-11	1.69	clear
Static water level:*	28.31	1112/9g	10.4	612	6.91	-16	1.62	"
Water depth:*	31.2	1125/11g	10.4	636	6.87	-21	1.57	"
Well volume: (gal)	2.3							
Purge method:	Peristaltic							
Sample method:	Peristaltic							
Start time:	1012	Odor:	None detected					
Stop time:	1125	Purge Appearance:	clear					
Duration: (minutes)	73	Sample Appearance:	clear					
Rate, gpm:	.15	Comments:						
Volume, purged:	11 gal							
Duplicate collected?	-							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: T
Location: MPLS	Date: 10-29-03
Project #: 23/27-169403.102	Sample Time: 1245

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	2"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	24.0	1218/4g.	14.1	835	6.91	38	3.91	clear
Static water level:*	16.86	1223/5g.	14.0	839	6.85	42	2.72	clear
Water depth:*	7	1228/6g.	13.9	843	6.80	41	2.14	clear
Well volume: (gal)	1.2	1233/7g	13.8	845	6.77	42	1.61	clear
Purge method:	Peristaltic	1238/8g	13.8	846	6.75	43	1.32	clear
Sample method:	Peristaltic	1243/9g.	13.9	852	6.77	44	1.21	clear
Start time:	1158	Odor: none detected						
Stop time:	1243	Purge Appearance: clear						
Duration: (minutes)	45	Sample Appearance: clear						
Rate, gpm:	.2	Comments:						
Volume, purged:	9 gal							
Duplicate collected?	—							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client:	General Mills	Monitoring Point:	X
Location:	MPLS	Date:	10-29-03
Project #:	23/27-169403102	Sample Time:	1335

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	2"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	21.0	1315 / 1.6 g.	13.3	1164	6.53	49	7.28	slightly cloudy
Static water level:*	19.83	1319 / 1.8 g.	13.4	1177	6.46	52	6.34	clearing
Water depth:*	1.2	1323 / 1 g.	13.5	1184	6.42	54	6.24	"
Well volume: (gal)	.2	1327 / 1.2 g.	13.6	1189	6.40	56	6.17	clear
Purge method:	Peristaltic	1331 / 1.4 g	13.7	1193	6.41	59	6.13	clear
Sample method:	Peristaltic							
Start time:	1303	Odor: none detected						
Stop time:	1331	Purge Appearance: begin- cloudy brown/end- clear						
Duration: (minutes)	28	Sample Appearance: clear						
Rate, gpm:	< .1	Comments:						
Volume, purged:	1.4 gal							
Duplicate collected?	—							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: V
Location: MPLS	Date: 10-29-03
Project #: 23/27-169403102	Sample Time: 1515

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	2"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	27.5	1432/3g.	17.3	410	7.54	21	1.64	clear
Static water level:*	20.57	1442/4g.	17.2	406	7.51	24	.82	clear
Water depth:*	6.9	1502/6g.	17.1	403	7.50	26	.75	clear
Well volume: (gal)	1.1	1512/7g.	17.0	401	7.47	27	.73	clear
Purge method:	Peristaltic							
Sample method:	Peristaltic							
Start time:	1402	Odor: None detected						
Stop time:	1512	Purge Appearance: clear						
Duration: (minutes)	70	Sample Appearance: clear						
Rate, gpm:	.1	Comments:						
Volume, purged:	7 gal							
Duplicate collected?	-							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: W
Location: MPLS	Date: 10-29-03
Project #: 23/27-169403102	Sample Time: 1630

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	2"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	19.0	1607/3g.	14.5	1353	6.61	40	0.97	clear
Static water level:*	12.81	1617/4g.	14.4	1344	6.57	44	0.77	clear
Water depth:*	6.2	1627/5g.	14.4	1338	6.54	46	0.73	clear
Well volume: (gal)	1							
Purge method:	Peristaltic							
Sample method:	Peristaltic							
Start time:	1537	Odor: none detected						
Stop time:	1627	Purge Appearance: clear						
Duration: (minutes)	50	Sample Appearance: clear						
Rate, gpm:	.1	Comments:						
Volume, purged:	5 gal							
Duplicate collected?	—							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: 9
Location: MPLS	Date: 10-30-03
Project #: 23/27.169 Y03 102	Sample Time: 0930

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	4"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	63.0	0856/62g	12.8	1350	7.35	35	1.32	clear
Static water level:*	31.21	0903/83g	12.9	1394	7.24	21	1.01	clear
Water depth:*	31.8	0910/104g	12.8	1421	7.17	20	0.70	clear
Well volume: (gal)	21	0917/125g	12.8	1437	7.12	17	0.49	clear
Purge method:	Dedicated	0924/146g	12.8	1432	7.07	14	0.34	clear
Sample method:	Grab							
Start time:	0835	Odor: none detected						
Stop time:	0924	Purge Appearance: clear						
Duration: (minutes)	51	Sample Appearance: clear						
Rate, gpm:	3	Comments:						
Volume, purged:	146 gal							
Duplicate collected?	—							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: 10
Location: MPLS	Date: 10-30-03
Project #: 23/27-169403 102	Sample Time: 1455

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	4	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	64.0	1415/69g.	12.4	588	8.55	-136	.97	clear
Static water level:*	28.93	1423/92g.	12.5	735	8.13	-87	.52	clear
Water depth:*	35.1	1431/115g.	12.6	912	7.94	-71	.38	clear
Well volume: (gal)	23	1438/138g.	12.6	1129	7.62	-59	.27	clear
Purge method:	Dedicated	1446/161g.	12.7	1147	7.51	-51	.21	clear
Sample method:	Grab	1454/194g.	12.7	1159	7.44	-40	.17	clear
Start time:	1352	Odor: none detected						
Stop time:	1454	Purge Appearance: clear						
Duration: (minutes)	62	Sample Appearance: clear						
Rate, gpm:	3	Comments:						
Volume, purged:	194 gal							
Duplicate collected?	M-1							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2+2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: 202
Location: MPLS	Date: 10-30-03
Project #: 23/27-169 403102	Sample Time: 1740

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	4"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	116.0	1641/53g.	12.7	657	7.10	38	3.49	cloudy brown
Static water level:*	88.89	1659/71g.	12.8	631	7.18	41	3.41	"
Water depth:*	27	1718/89g.	12.9	620	7.08	43	3.46	clearing
Well volume: (gal)	18	1736/107g.	13.0	612	7.04	45	3.51	
Purge method:	Dedicated							
Sample method:	Grab							
Start time:	1548	Odor:						
Stop time:	1736	Purge Appearance: cloudy brown /						
Duration: (minutes)	107	Sample Appearance:						
Rate, gpm:	1	Comments: Difficult to start Pump delay about 20 minutes, ; power cord @ generator sparked & became hot initially.						
Volume, purged:	107 gal							
Duplicate collected?	—							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: 200
Location: MPLS	Date: 10-31-03
Project #: 23/27-169Y03102	Sample Time: 1210

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	8"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	198.0	1109/880 gal	10.2	703	7.35	5	2.22	clear
Static water level:*	84.91	1128/1175 gal	9.1	605	7.25	3	1.80	clear
Water depth:*	113.1	1149/1470 gal	7.8	589	7.22	5	1.91	clear
Well volume: (gal)	294	1208/1764 gal	6.9	567	7.16	8	1.97	clear
Purge method:	Dedicated							
Sample method:	Grab							
Start time:	1010	Odor: none detected						
Stop time:	1208	Purge Appearance: clear						
Duration: (minutes)	118	Sample Appearance: clear						
Rate, gpm:	15	Comments:						
Volume, purged:	1764 gal							
Duplicate collected?	—							
Sample collection by: KSJ		CO2- Mn2- Fe(T)- Fe2-						

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: General Mills	Monitoring Point: 203
Location: MPLS	Date: 10.31.03
Project #: 23/27-1694/03102	Sample Time: 1345

GENERAL DATA		STABILIZATION TEST						
Barr lock:	YES							
Casing diameter:	4	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	118.0	1303/66 g.	11.8	590	7.55	18	4.36	clear
Static water level:*	95.64	1322/88 g.	11.8	597	7.47	21	4.19	clear
Water depth:*	22	1337/110 g.	11.9	599	7.43	23	4.23	clear
Well volume: (gal)	14	1344/132 g.	11.9	601	7.40	24	4.15	clear
Purge method:	Dedicated							
Sample method:	Grab							
Start time:	1238	Odor: None detected						
Stop time:	1344	Purge Appearance: clear						
Duration: (minutes)	66	Sample Appearance: clear						
Rate, gpm:	2	Comments:						
Volume, purged:	132 gal							
Duplicate collected?	—							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client:	General Mills	**Monitoring Point:**	Henkel
Location:	Mpls	**Date:**	10-31-03
Project #:	23/27-169403102	**Sample Time:**	

GENERAL DATA		STABILIZATION TEST						
Barr lock:								
Casing diameter:		Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*			10.7	490	8.10	29	7.25	Slightly Cloudy
Static water level:*								
Water depth:*								
Well volume: (gal)								
Purge method:	Dedicated							
Sample method:	Grab							
Start time:		Odor:						
Stop time:		Purge Appearance:						
Duration: (minutes)		Sample Appearance:						
Rate, gpm:		Comments:						
Volume, purged:								
Duplicate collected?								
Sample collection by:	KSJ	CO2-		Mn2-		Fe(T)-		Fe2-

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 2 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR ENGINEERING COMPANY
METER CALIBRATION SUMMARY

PROJECT General Mills

TECHNICIAN 23/27-169 403

Meter type and number	Date	Time	Temperature C	Standard Used	Meter Reading	Slope	Conductivity Redline
YSI 556	10-28-03	0810	12	7/10	7.00/10.00	–	–
	10-29-03	0755	10	7/10	7.00/10.00	–	–
	10-30-03	0815	14	7/10	7.00/10.00	–	–
Conductivity	Date	Solution Used	Cell Result				
Cell Check	10-28-03	1000 umhos	1000 umhos				
	10-29-03	"	"				
ORP Probe	Date	Temp.	ORP Reading	Calculation Result			
Check	10-28-03	12	246	246			
231+.- 10mV @ 25C	10-29-03	10	254	254			

231mV = Display Value + [(Display Temp. - 25 C) x (1.3 mV)]

WEATHER CONDITIONS

Date	Wind Direction	Wind Speed	Temperature F	Cloud Cover	Comments
10-28-03	NW	10-20 mph	35-43	overcast	drizzle
10-29-03	NW	5-15 "	35-40	overcast	"
10-30-03	NW	5-10 "	37-43	overcast	"

Comments:

Chain of Custody

BARR
4700 West 77th Street
Minneapolis, MN 55435-4803
(952) 832-2600

Project Number: 23/27-169 [redacted] 102

PO 17458

Sample Identification	Collection Date	Collection Time	Matrix: Water	Matrix: Soil	Matrix: Other	Type: Grab	Type: Comp.	Type: QC
1. 11	10-28-03		✓			✓		
2. SS	↓		✓			✓		
3. TT			✓			✓		
4. 14			✓			✓		
5. 12	↓		✓			✓		
6. UU	10-29-03		✓			✓		
7. Q	↓		✓			✓		
8. QQ			✓			✓		
9. T			✓			✓		
10. X			✓			✓		
11. V			✓			✓		
12. W	↓		✓			✓		
13. 9	10-30-03		✓			✓		
14. 10 (M-1)	↓		✓			✓		
15. M-1			✓			✓		✓
16. 202	↓		✓			✓		

Number of Containers/Preservative

Volatile Organic (Unpres.)	Volatile Organic (Pres.)	Semivolatile Organic	Total Metals (HNO_3)	Dissolved Metals (HNO_3)	General (Unpreserved)	Cyanide ($NaOH$,Asc. Acid)	Nutrients (H_2SO_4)	Oil and Grease (H_2SO_4)	TOC (H_2SO_4)	Sulfide (Zn Acetate)	Dioxin	Whirlpak	Total Phenol (H_2SO_4)	Methane	(HCL)/DRO, 1L Glass	Lugols, Glass, Amber	Formalin, Glass	Total No. Of Containers
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2
	2																	2

Project Manager: WJB

Project Contact: MSH

Laboratory: TRI-MATRIX

Remarks/ Analysis Required: Table A-1

LIST 2

TCE

Sampled By: Kim Johannessen

Remarks:

Relinquished By: [signature] Date 10-30-03 Time

Relinquished By: Date Time

Samples Shipped VIA ☐ Air Freight ☒ Fed. Exp. ☐ Sampler ☐ Other

Received by: Date Time

Received by: Date Time

Air Bill Number: 822786810368

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

Rev. 08/01/01

H:\RLG\STDFORMS\CHAINCST.CDR

Chain of Custody

BARR
4700 West 77th Street
Minneapolis, MN 55435-4803
(952) 832-2600

Project Number: 23/27-169 [redacted] 102

[redacted] 16559

Project Manager: WJB
Project Contact: MSH
Laboratory: Tri-Matrix
Remarks/ Analysis Required: Table A-1

Sample Identification	Collection Date	Collection Time	Matrix: Water	Matrix: Soil	Matrix: Other	Type: Grab	Type: Comp.	Type: QC	Number of Containers/Preservative: Volatile Organic (Unpres.)	Volatile Organic (Pres.)	Semivolatile Organic	Total Metals (HNO_3)	Dissolved Metals (HNO_3)	General (Unpreserved)	Cyanide (NaOH,Asc. Acid)	Nutrients (H_2SO_4)	Oil and Grease (H_2SO_4)	TOC (H_2SO_4)	Sulfide (Zn Acetate)	Dioxin	Whirlpak	Total Phenol (H_2SO_4)	Methane	(HCL)/DRO, 1L Glass	Lugols, Glass, Amber	Formalin, Glass	Total No. Of Containers	
1. 200	10-31-03		✓			✓				2																2	LIST 2
2. 203			✓			✓				2																2	TCE
3. Henkel			✓			✓				2																2	LIST 2
4. DSCHG			✓			✓				2																2	NPDES
5. INF			✓			✓				2																2	
6. M6 EFF			✓			✓				2																2	
7. EFF			✓			✓				2																2	
8. FB-1			✓					✓		2																2	
9. TB			✓					✓		2																2	
10.																											
11.																											
12.																											
13.																											
14.																											
15.																											
16.																											

Sampled By: Kim Johannessen
Remarks:

Relinquished By: Kim Johannessen — Date: 10-31-03 — Time:
Relinquished By: — Date: — Time:
Samples Shipped VIA: ☐ Air Freight ☒ Fed. Exp. ☐ Sampler ☐ Other

Received by: — Date: — Time:
Received by: — Date: — Time:
Air Bill Number:

H:RLGISTDFORMSICHAINGST.CDR

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

Rev. 08/01/01

TriMatrix
Laboratories, Inc.

November 18, 2003

Barr Engineering Company
Attn: Marta Nelson
4700 West 77th Street
Minneapolis, MN 55435

RE: 23/27-169TMF:General Mills MN Cert. #026-999-161
Submittal Number: 34926-27

Dear Ms. Marta Nelson:

Enclosed is a copy of your laboratory report for test samples received by our laboratory on November 3, 2003.

Please note that the test results of the enclosed analyses relate only to the sample(s) as received at the laboratory, and are in compliance with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC) standards. Qualification of test standards, including sample acceptance requirements, are presented within the Statement of Data Qualifications.

Estimates of analytical uncertainties for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Jennifer L. Rice
Project Chemist

Enclosure(s)

The total number of pages in this report, including this page, is 39.

34926- 27

STATEMENT OF DATA QUALIFICATIONS

All analyses have been validated and comply with our Quality Control Program. No qualifications required.

Page 1 - **End of Statement of Data Qualifications**

Note: This document is included as a part of the analytical report for the above referenced project and submittal, and should be retained as a permanent record thereof.

TriMatrix Laboratories, Inc.

ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **11**
Sample #: **348058**
Matrix: Water
Unit: ug/L

Sampled: 10/28/03 @ 00:00
Sampler: K.J.
Received: 10/31/03 @ 09:00
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/07/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90837 -107
Anal. Batch: 209223
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<2.0	2.0
107-06-2	1,2-Dichloroethane	<2.0	2.0
156-59-2	**cis-1,2-Dichloroethene**	**7.5**	2.0
156-60-5	trans-1,2-Dichloroethene	<2.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	<2.0	2.0
127-18-4	Tetrachloroethene	<2.0	2.0
71-55-6	1,1,1-Trichloroethane	<2.0	2.0
79-01-6	**Trichloroethene**	**48**	2.0
71-43-2	**Benzene**	**6.9**	2.0
100-41-4	Ethylbenzene	<2.0	2.0
108-88-3	Toluene	<2.0	2.0
1330-20-7	Xylene (Total)	<6.0	6.0
75-01-4	Vinyl Chloride	<2.0	2.0

TriMatrix Laboratories, Inc.

ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/28/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	10/31/03 @ 09:00
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/07/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**SS**	QC Batch:	90837 -107
Sample #:	**348059**	Anal. Batch:	209223
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	**1,1-Dichloroethane**	**3.0**	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	**Trichloroethene**	**2.9**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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TriMatrix Laboratories, Inc.

ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **TT**
Sample #: **348060**
Matrix: Water
Unit: ug/L

Sampled: 10/28/03 @ 00:00
Sampler: K.J.
Received: 10/31/03 @ 09:00
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/07/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90837 -107
Anal. Batch: 209223
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	**cis-1,2-Dichloroethene**	**2.9**	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	**1,1,1-Trichloroethane**	**2.0**	1.0
79-01-6	**Trichloroethene**	**5.6**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/28/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	10/31/03 @ 09:00
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/07/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**14**	QC Batch:	90837 -107
Sample #:	**348061**	Anal. Batch:	209223
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	**cis-1,2-Dichloroethene**	**1.7**	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	**1,1,1-Trichloroethane**	**1.6**	1.0
79-01-6	**Trichloroethene**	**4.7**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **12**
Sample #: **348062**
Matrix: Water
Unit: ug/L

Sampled: 10/28/03 @ 00:00
Sampler: K.J.
Received: 10/31/03 @ 09:00
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/07/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90837 -107
Anal. Batch: 209223
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	**Trichloroethene**	**1.7**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **UU**
Sample #: **348063**
Matrix: Water
Unit: ug/L

Sampled: 10/29/03 @ 00:00
Sampler: K.J.
Received: 10/31/03 @ 09:00
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/07/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90837 -107
Anal. Batch: 209223
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	**1,1,1-Trichloroethane**	**1.5**	1.0
79-01-6	**Trichloroethene**	**25**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **Q**
Sample #: **348064**
Matrix: Water
Unit: ug/L

Sampled: 10/29/03 @ 00:00
Sampler: K.J.
Received: 10/31/03 @ 09:00
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/07/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90837 -107
Anal. Batch: 209223
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	**1,1,1-Trichloroethane**	**2.4**	1.0
79-01-6	Trichloroethene	<1.0	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/29/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	10/31/03 @ 09:00
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/07/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**QQ**	QC Batch:	90837 -107
Sample #:	**348065**	Anal. Batch:	209223
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	**cis-1,2-Dichloroethene**	**1.1**	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **T**
Sample #: **348066**
Matrix: Water
Unit: ug/L

Sampled: 10/29/03 @ 00:00
Sampler: K.J.
Received: 10/31/03 @ 09:00
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/07/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90837 -107
Anal. Batch: 209223
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/29/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	10/31/03 @ 09:00
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/08/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**X**	QC Batch:	90837 -107
Sample #:	**348067**	Anal. Batch:	209223
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **V**
Sample #: **348068**
Matrix: Water
Unit: ug/L

Sampled: 10/29/03 @ 00:00
Sampler: K.J.
Received: 10/31/03 @ 09:00
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/10/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90837 -110
Anal. Batch: 209225
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	**Trichloroethene**	**14**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/29/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	10/31/03 @ 09:00
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/08/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**W**	QC Batch:	90837 -107
Sample #:	**348069**	Anal. Batch:	209223
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<2.0	2.0
107-06-2	1,2-Dichloroethane	<2.0	2.0
156-59-2	**cis-1,2-Dichloroethene**	**52**	2.0
156-60-5	**trans-1,2-Dichloroethene**	**3.5**	2.0
79-34-5	1,1,2,2-Tetrachloroethane	<2.0	2.0
127-18-4	Tetrachloroethene	<2.0	2.0
71-55-6	1,1,1-Trichloroethane	<2.0	2.0
79-01-6	**Trichloroethene**	**14**	2.0
71-43-2	Benzene	<2.0	2.0
100-41-4	Ethylbenzene	<2.0	2.0
108-88-3	Toluene	<2.0	2.0
1330-20-7	Xylene (Total)	<6.0	6.0
75-01-4	Vinyl Chloride	<2.0	2.0

ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **9**
Sample #: **348070**
Matrix: Water
Unit: ug/L

Sampled: 10/30/03 @ 00:00
Sampler: K.J.
Received: 10/31/03 @ 09:00
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/08/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90837 -107
Anal. Batch: 209223
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	**Trichloroethene**	**1.1**	1.0
71-43-2	**Benzene**	**12**	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/30/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	10/31/03 @ 09:00
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/08/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**10**	QC Batch:	90837 -107
Sample #:	**348071**	Anal. Batch:	209223
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	**1,1,1-Trichloroethane**	**1.2**	1.0
79-01-6	**Trichloroethene**	**15**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **M-1**
Sample #: **348072**
Matrix: Water
Unit: ug/L

Sampled: 10/30/03 @ 00:00
Sampler: K.J.
Received: 10/31/03 @ 09:00
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/10/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90837 -110
Anal. Batch: 209225
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	**1,1,1-Trichloroethane**	**1.2**	1.0
79-01-6	**Trichloroethene**	**16**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/30/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	10/31/03 @ 09:00
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/08/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**202**	QC Batch:	90837 -107
Sample #:	**348073**	Anal. Batch:	209223
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **200**
Sample #: **348192**
Matrix: Water
Unit: ug/L

Sampled: 10/31/03 @ 00:00
Sampler: K.J.
Received: 11/01/03 @ 09:10
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/12/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90937 -112
Anal. Batch: 209352
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	**cis-1,2-Dichloroethene**	**1.6**	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	**Trichloroethene**	**4.2**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/31/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	11/01/03 @ 09:10
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/12/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**203**	QC Batch:	90937 -112
Sample #:	**348193**	Anal. Batch:	209352
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	**cis-1,2-Dichloroethene**	**3.6**	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	**Trichloroethene**	**28**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **Henkel**
Sample #: **348194**
Matrix: Water
Unit: ug/L

Sampled: 10/31/03 @ 00:00
Sampler: K.J.
Received: 11/01/03 @ 09:10
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/13/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90937 -112
Anal. Batch: 209352
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	**cis-1,2-Dichloroethene**	**4.2**	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	**Trichloroethene**	**4.0**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/31/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	11/01/03 @ 09:10
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/12/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**DSCHG**	QC Batch:	90937 -112
Sample #:	**348195**	Anal. Batch:	209352
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<2.0	2.0
107-06-2	1,2-Dichloroethane	<2.0	2.0
156-59-2	**cis-1,2-Dichloroethene**	**6.3**	2.0
156-60-5	trans-1,2-Dichloroethene	<2.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	<2.0	2.0
127-18-4	Tetrachloroethene	<2.0	2.0
71-55-6	1,1,1-Trichloroethane	<2.0	2.0
79-01-6	**Trichloroethene**	**48**	2.0
71-43-2	Benzene	<2.0	2.0
100-41-4	Ethylbenzene	<2.0	2.0
108-88-3	Toluene	<2.0	2.0
1330-20-7	Xylene (Total)	<6.0	6.0
75-01-4	Vinyl Chloride	<2.0	2.0

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TriMatrix Laboratories, Inc.

ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/31/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	11/01/03 @ 09:10
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/12/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**INF**	QC Batch:	90937 -112
Sample #:	**348196**	Anal. Batch:	209352
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<10	10
107-06-2	1,2-Dichloroethane	<10	10
156-59-2	**cis-1,2-Dichloroethene**	**24**	10
156-60-5	trans-1,2-Dichloroethene	<10	10
79-34-5	1,1,2,2-Tetrachloroethane	<10	10
127-18-4	Tetrachloroethene	<10	10
71-55-6	1,1,1-Trichloroethane	<10	10
79-01-6	**Trichloroethene**	**200**	10
71-43-2	Benzene	<10	10
100-41-4	Ethylbenzene	<10	10
108-88-3	Toluene	<10	10
1330-20-7	Xylene (Total)	<30	30
75-01-4	Vinyl Chloride	<10	10

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ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/31/03 @ 00:00
Project:	23/27-169TMF:General Mills MN Cert. #026-999-161	Sampler:	K.J.
		Received:	11/01/03 @ 09:10
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/12/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**M6 EFF**	QC Batch:	90937 -112
Sample #:	**348197**	Anal. Batch:	209352
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	**cis-1,2-Dichloroethene**	**2.1**	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	**Trichloroethene**	**12**	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

ANALYTICAL REPORT

Client: **Barr Engineering Company**
Project: 23/27-169TMF:General Mills
MN Cert. #026-999-161

Submittal #: **34926-27**
Submittal: October 2003 Samples

Sample ID: **EFF**
Sample #: **348198**
Matrix: Water
Unit: ug/L

Sampled: 10/31/03 @ 00:00
Sampler: K.J.
Received: 11/01/03 @ 09:10
Prepared: n/a
Prep. Method: n/a
Analyzed: 11/12/03 by TME
Anal. Method: USEPA-8021B
QC Batch: 90937 -112
Anal. Batch: 209352
Percent Solids: n/a
Dilution Factor: 1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

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ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/31/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	11/01/03 @ 09:10
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/13/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**FB-1**	QC Batch:	90937 -112
Sample #:	**348199**	Anal. Batch:	209352
Matrix:	Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

ANALYTICAL REPORT

Client:	**Barr Engineering Company**	Sampled:	10/31/03 @ 00:00
Project:	23/27-169TMF:General Mills	Sampler:	K.J.
	MN Cert. #026-999-161	Received:	11/01/03 @ 09:10
		Prepared:	n/a
Submittal #:	**34926-27**	Prep. Method:	n/a
Submittal:	October 2003 Samples	Analyzed:	11/13/03 by TME
		Anal. Method:	USEPA-8021B
Sample ID:	**TB**	QC Batch:	90937 -113
Sample #:	**348200**	Anal. Batch:	209356
Matrix:	QC Water	Percent Solids:	n/a
Unit:	ug/L	Dilution Factor:	1

CAS Number	Project Specific Fraction USEPA 8021	Analytical Result	Reporting Limit
75-34-3	1,1-Dichloroethane	<1.0	1.0
107-06-2	1,2-Dichloroethane	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
79-34-5	1,1,2,2-Tetrachloroethane	<1.0	1.0
127-18-4	Tetrachloroethene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
71-43-2	Benzene	<1.0	1.0
100-41-4	Ethylbenzene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0
75-01-4	Vinyl Chloride	<1.0	1.0

End of Analytical Report

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QUALITY CONTROL REPORT

LABORATORY FORTIFIED BLANK

Fraction: Volatile Organic Fraction USEPA Method-8021
Method: Halogenated and Aromatic Volatiles by GC
Analyst: Timothy M. Eldridge Test Date: 11/07/03
Units: ug/L
QC Batch: 90837-107

Parameter	Spike Quantity	Spike Result	Spike % Rec	Control Limits
Benzene	20.0	18.2	91	83 - 119
Chlorobenzene	20.0	20.0	100	79 - 119
1,1-Dichloroethylene	20.0	17.4	87	66 - 135
Trichloroethene	20.0	17.2	86	82 - 121
Toluene	20.0	19.0	95	77 - 128
1,2-Dichloroethane	20.0	20.1	101	81 - 123

QUALITY CONTROL REPORT

LABORATORY FORTIFIED BLANK

Fraction: Volatile Organic Fraction USEPA Method-8021
Method: Halogenated and Aromatic Volatiles by GC
Analyst: Timothy M. Eldridge Test Date: 11/10/03
Units: ug/L
QC Batch: 90837-110

Parameter	Spike Quantity	Spike Result	Spike % Rec	Control Limits
Benzene	20.0	19.0	95	83 - 119
Chlorobenzene	20.0	21.1	106	79 - 119
1,1-Dichloroethylene	20.0	17.1	86	66 - 135
Trichloroethene	20.0	20.7	104	82 - 121
Toluene	20.0	19.7	99	77 - 128
1,2-Dichloroethane	20.0	20.8	104	81 - 123

QUALITY CONTROL REPORT

LABORATORY FORTIFIED BLANK

Fraction: Volatile Organic Fraction USEPA Method-8021
Method: Halogenated and Aromatic Volatiles by GC
Analyst: Timothy M. Eldridge Test Date: 11/12/03
Units: ug/L
QC Batch: 90937-112

Parameter	Spike Quantity	Spike Result	Spike % Rec	Control Limits
Benzene	20.0	18.7	94	83 - 119
Chlorobenzene	20.0	18.6	93	79 - 119
1,1-Dichloroethylene	20.0	20.8	104	66 - 135
Trichloroethene	20.0	18.1	91	82 - 121
Toluene	20.0	19.4	97	77 - 128
1,2-Dichloroethane	20.0	19.1	96	81 - 123

QUALITY CONTROL REPORT

LABORATORY FORTIFIED BLANK

Fraction: Volatile Organic Fraction USEPA Method-8021
Method: Halogenated and Aromatic Volatiles by GC
Analyst: Timothy M. Eldridge Test Date: 11/13/03
Units: ug/L
QC Batch: 90937-113

Parameter	Spike Quantity	Spike Result	Spike % Rec	Control Limits
Benzene	20.0	19.6	98	83 - 119
Chlorobenzene	20.0	20.0	100	79 - 119
1,1-Dichloroethylene	20.0	22.2	111	66 - 135
Trichloroethene	20.0	18.8	94	82 - 121
Toluene	20.0	20.5	103	77 - 128
1,2-Dichloroethane	20.0	19.9	100	81 - 123

QUALITY CONTROL REPORT

MATRIX SPIKE RECOVERY

Fraction: Volatile Organic Fraction USEPA Method-8021
Method: Halogenated and Aromatic Volatiles by GC USEPA-8021B WATER
Analyst: Timothy M. Eldridge Test Date: 11/12/03
Sample No: 348197
Units: ug/L
QC Batch: 90937-112

Parameter	Sample Conc	Spike Quantity	Sample +Spike	Spike % Rec	Control Limits
Benzene	<1.0	20.0	18.9	95	69 - 140
Chlorobenzene	<1.0	20.0	18.1	91	72 - 129
1,1-Dichloroethylene	<1.0	20.0	20.5	103	60 - 143
Trichloroethene	12	20.0	29.1	86	60 - 131
Toluene	<1.0	20.0	18.7	94	75 - 131
1,2-Dichloroethane	<1.0	20.0	17.5	88	64 - 131

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QUALITY CONTROL REPORT

MATRIX SPIKE RECOVERY

Fraction: Volatile Organic Fraction USEPA Method-8021
Method: Halogenated and Aromatic Volatiles by GC USEPA-8021B WATER
Analyst: Timothy M. Eldridge Test Date: 11/12/03
Sample No: 348197
Units: ug/L
QC Batch: 90937-112

Parameter	Sample Conc	Spike Quantity	Sample +Spike	Spike % Rec	Control Limits
Benzene	<1.0	20.0	18.5	93	69 - 140
Chlorobenzene	<1.0	20.0	18.0	90	72 - 129
1,1-Dichloroethylene	<1.0	20.0	20.3	102	60 - 143
Trichloroethene	12	20.0	29.3	87	60 - 131
Toluene	<1.0	20.0	18.4	92	75 - 131
1,2-Dichloroethane	<1.0	20.0	18.7	94	64 - 131

QUALITY CONTROL REPORT

MATRIX SPIKE DUPLICATE

Fraction: Volatile Organic Fraction USEPA Method-8021
Method: Halogenated and Aromatic Volatiles by GC USEPA-8021B WATER
Analyst: Timothy M. Eldridge Test Date: 11/12/03
Sample No: 348197
Units: ug/L
QC Batch: 90937-112

Parameter	Sample+Spike Conc #1	Sample+Spike Conc #2	Relative % Diff.	Control Limits
Benzene	18.9	18.5	2	0 - 11
Chlorobenzene	18.1	18.0	1	0 - 13
1,1-Dichloroethylene	20.5	20.3	1	0 - 20
Trichloroethene	29.1	29.3	1	0 - 14
Toluene	18.7	18.4	2	0 - 11
1,2-Dichloroethane	17.5	18.7	7	0 - 20

QUALITY CONTROL REPORT

METHOD PREPARATION BLANK

Fraction: Volatile Organics USEPA Method 8021
Method: Halogenated and Aromatic Volatiles by GC
Analyst: Timothy M. Eldridge Test Date: 11/07/03
Units: ug/L
QC Batch: 90837-107

Parameter	Blank Concentration	Quantitation Limit
Benzene	<1.00	1.0
1,1-Dichloroethane	<1.00	1.0
1,2-Dichloroethane	<1.00	1.0
cis-1,2-Dichloroethene	<1.00	1.0
trans-1,2-Dichloroethene	<1.00	1.0
Ethylbenzene	<1.00	1.0
1,1,2,2-Tetrachloroethane	<1.00	1.0
Tetrachloroethene	<1.00	1.0
Toluene	<1.00	1.0
1,1,1-Trichloroethane	<1.00	1.0
Trichloroethene	<1.00	1.0
Vinyl Chloride	<1.00	1.0
Xylene (Total)	<3.00	3.0

QUALITY CONTROL REPORT

METHOD PREPARATION BLANK

Fraction: Volatile Organics USEPA Method 8021
Method: Halogenated and Aromatic Volatiles by GC
Analyst: Timothy M. Eldridge Test Date: 11/10/03
Units: ug/L
QC Batch: 90837-110

Parameter	Blank Concentration	Quantitation Limit
Benzene	<1.00	1.0
1,1-Dichloroethane	<1.00	1.0
1,2-Dichloroethane	<1.00	1.0
cis-1,2-Dichloroethene	<1.00	1.0
trans-1,2-Dichloroethene	<1.00	1.0
Ethylbenzene	<1.00	1.0
1,1,2,2-Tetrachloroethane	<1.00	1.0
Tetrachloroethene	<1.00	1.0
Toluene	<1.00	1.0
1,1,1-Trichloroethane	<1.00	1.0
Trichloroethene	<1.00	1.0
Vinyl Chloride	<1.00	1.0
Xylene (Total)	<3.00	3.0

QUALITY CONTROL REPORT

METHOD PREPARATION BLANK

Fraction: Volatile Organics USEPA Method 8021
Method: Halogenated and Aromatic Volatiles by GC
Analyst: Timothy M. Eldridge Test Date: 11/12/03
Units: ug/L
QC Batch: 90937-112

Parameter	Blank Concentration	Quantitation Limit
Benzene	<1.00	1.0
Chlorobenzene	<1.00	1.0
1,1-Dichloroethane	<1.00	1.0
1,2-Dichloroethane	<1.00	1.0
1,1-Dichloroethylene	<1.00	1.0
cis-1,2-Dichloroethene	<1.00	1.0
trans-1,2-Dichloroethene	<1.00	1.0
Ethylbenzene	<1.00	1.0
1,1,2,2-Tetrachloroethane	<1.00	1.0
Tetrachloroethene	<1.00	1.0
Toluene	<1.00	1.0
1,1,1-Trichloroethane	<1.00	1.0
Trichloroethene	<1.00	1.0
Vinyl Chloride	<1.00	1.0
Xylene (Total)	<3.00	3.0

QUALITY CONTROL REPORT

METHOD PREPARATION BLANK

Fraction: Volatile Organics USEPA Method 8021
Method: Halogenated and Aromatic Volatiles by GC
Analyst: Timothy M. Eldridge Test Date: 11/13/03
Units: ug/L
QC Batch: 90937-113

Parameter	Blank Concentration	Quantitation Limit
Benzene	<1.00	1.0
1,1-Dichloroethane	<1.00	1.0
1,2-Dichloroethane	<1.00	1.0
cis-1,2-Dichloroethene	<1.00	1.0
trans-1,2-Dichloroethene	<1.00	1.0
Ethylbenzene	<1.00	1.0
1,1,2,2-Tetrachloroethane	<1.00	1.0
Tetrachloroethene	<1.00	1.0
Toluene	<1.00	1.0
1,1,1-Trichloroethane	<1.00	1.0
Trichloroethene	<1.00	1.0
Vinyl Chloride	<1.00	1.0
Xylene (Total)	<3.00	3.0

QUALITY CONTROL REPORT
SURROGATE RECOVERIES

Method: Halogenated and Aromatic Volatiles by GC USEPA-8021B WATER

Surrogate Compound List

SUR-1: aaa-Trifluorotoluene-sur
SUR-2: d4-1,2-Dichloroethane-sur

% R = Percent Recovery

Compounds:		SUR-1	SUR-2
Control Limits:		90-113	76-129
Sample # / ID	Batch	% R	% R
MPB-01	90837-107	100	100
MPB-01	90837-110	99	97
MPB-01	90937-112	100	103
MPB-01	90937-113	100	103
LFB-01	90837-107	100	101
LFB-01	90837-110	100	101
LFB-01	90937-112	100	98
LFB-01	90937-113	101	97
348058	90837-107	100	98
348059	90837-107	99	98
348060	90837-107	99	95
348061	90837-107	99	95
348062	90837-107	99	99
348063	90837-107	99	93
348064	90837-107	100	95
348065	90837-107	100	99
348066	90837-107	99	100
348067	90837-107	99	98
348068	90837-110	100	104
348069	90837-107	100	99
348070	90837-107	94	101
348071	90837-107	99	93
348072	90837-110	99	98
348073	90837-107	99	100
348192	90937-112	100	106
348193	90937-112	100	100
348194	90937-112	100	99
348195	90937-112	101	94
348196	90937-112	100	98
348197	90937-112	100	100
348198	90937-112	101	99
348199	90937-112	101	98
348200	90937-113	101	103

TRW 05,553-B-1

34926-27

Chain of Custody

BARR
4700 West 77th Street
Minneapolis, MN 55435-4803
(952) 832-2600

Project Number: 23/27-169 403 102

№ 17458

Sample Identification	Collection Date	Collection Time	Matrix: Water	Matrix: Soil	Matrix: Other	Type: Grab	Type: Comp.	Type: QC
1. 11	10-28-03		✓			✓		
2. SS	↓		✓			✓		
3. TT			✓			✓		
4. 14			✓			✓		
5. 12	↓		✓			✓		
6. UU	10-29-03		✓			✓		
7. Q	↓		✓			✓		
8. QQ			✓			✓		
9. T			✓			✓		
10. X			✓			✓		
11. V			✓			✓		
12. W	↓		✓			✓		
13. 9	10-30-03		✓			✓		
14. 10	↓		✓			✓		
15. M-1			✓			✓		✓
16. 202	↓		✓			✓		

Number of Containers/Preservative

Sample Identification	Volatile Organic (Unpres.)	Volatile Organic (Pres.)	Semivolatile Organic	Total Metals (HNO_3)	Dissolved Metals (HNO_3)	General (Unpreserved)	Cyanide (NaOH,Asc. Acid)	Nutrients (H_2SO_4)	Oil and Grease (H_2SO_4)	TOC (H_2SO_4)	Sulfide (Zn Acetate)	Dioxin	Whirlpak	Total Phenol (H_2SO_4)	Methane	(HCL)/DRO, 1L Glass	Lugols, Glass, Amber	Formalin, Glass	Total No. Of Containers
1. 11		2					5				01						348058		2
2. SS		2															348059		2
3. TT		2															348060		2
4. 14		2															348061		2
5. 12		2															348062		2
6. UU		2															348063		2
7. Q		2															348064		2
8. QQ		2															348065		2
9. T		2															348066		2
10. X		2															348067		2
11. V		2															348068		2
12. W		2															348069		2
13. 9		2															348070		2
14. 10		2															348071		2
15. M-1		2															348072		2
16. 202		2															348073		2

Project Manager: WJB

Project Contact: MSH

Laboratory: TRI-MATRIX

Remarks/ Analysis Required: Table A-1

LIST 2

TCE

Sampled By: Kim Johanssen

Remarks:

Relinquished By: [signature] Date 10-30-03 Time

Relinquished By: Date Time

Samples Shipped VIA ☐ Air Freight ☒ Fed. Exp. ☐ Sampler ☐ Other

Received by: Date Time

Received by: Date Time

Air Bill Number: 822786810368

H:RLGISTDFORMS\CHAINCST.CDR

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

Rev. 08/01

3-1926.21 318-6-10

Chain of Custody

BARR
4700 West 77th Street
Minneapolis, MN 55435-4803
(952) 832-2600

Project Number: 23/27-169 403 102

№ 16559

Sample Identification	Collection Date	Collection Time	Matrix: Water	Matrix: Soil	Matrix: Other	Type: Grab	Type: Comp.	Type: QC	Volatile Organic (Unpres.)	Volatile Organic (Pres.)	Semivolatile Organic	Total Metals (HNO_3)	Dissolved Metals (HNO_3)	General (Unpreserved)	Cyanide (NaOH,Asc. Acid)	Nutrients (H_2SO_4)	Oil and Grease (H_2SO_4)	TOC (H_2SO_4)	Sulfide (Zn Acetate)	Dioxin	Whirlpak	Total Phenol (H_2SO_4)	Methane	(HCL)/DRO, 1L Glass	Lugols, Glass, Amber	Formalin, Glass					Total No. Of Containers	Analysis Required
1. 200	10-31-03		✓			✓				2									✓		✓									2	LIST 2 348192
2. 203			✓			✓				2																				2	TCE 348193
3. Henkel			✓			✓				2																				2	LIST 2 348194
4. BSCHG			✓			✓				2																				2	NPDES 348195
5. INF			✓			✓				2																				2	348196
6. M6 EFF			✓			✓				2																				2	348197
7. EFF			✓			✓				2																				2	348198
8. FB-1			✓					✓		2																				2	348199
9. TB			✓					✓		2																				2	348200
10.																															
11.																															
12.																															
13.																															
14.																															
15.																															
16.																															

Number of Containers/Preservative

Project Manager: WJB

Project Contact: MSH

Laboratory: Tri-matrix

Remarks/ Analysis Required: Table A-1

Sampled By: Kim Johannessen

Remarks:

Relinquished By: Kim Johannessen — Date: 10-31-03 — Time:

Relinquished By: — Date: — Time:

Samples Shipped VIA: ☐ Air Freight ☒ Fed. Exp. ☐ Sampler ☐ Other

Received by: — Date: 11/1/03 — Time: 9:10

Received by: — Date: — Time:

Air Bill Number:

H:\RLGIS\DFORMS\CHAINCST.CDR

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Co... Pink - Lab Coordinator

Rev. 08/01/0

9-3

Appendix C

Quality Control Data

Appendix C

Quality Assurance/Quality Control

List of Tables

Table C-1
2003 Blank Sample Data

(concentrations in ug/L)

Location Date	Field Blank 3/13/2003	Field Blank 6/2/2003	Field Blank 8/26/2003	Field Blank 10/31/2003	Trip Blank 3/13/2003	Trip Blank 6/2/2003	Trip Blank 8/26/2003	Trip Blank 10/31/2003	Lab Blank 3/13/2003	Lab Blank 3/13/2003	Lab Blank 6/2/2003	Lab Blank 6/2/2003	Lab Blank 8/26/2003
1,1,1-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethylene, cis	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethylene, trans	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethyl benzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethylene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethylene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes total	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

-- Not analyzed.

Table C-1
2003 Blank Sample Data

(concentrations in ug/L)

Location Date	Lab Blank 8/26/2003	Lab Blank 10/28/2003	Lab Blank 10/28/2003	Lab Blank 10/28/2003	Lab Blank 10/28/2003
1,1,1-Trichloroethane	--	<1.00	<1.00	<1.00	<1.00
1,1,2,2-Tetrachloroethane	--	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	<1.0	<1.00	<1.00	<1.00	<1.00
1,2-Dichloroethane	<1.0	<1.00	<1.00	<1.00	<1.00
1,2-Dichloroethylene, cis	<1.0	<1.00	<1.00	<1.00	<1.00
1,2-Dichloroethylene, trans	<1.0	<1.00	<1.00	<1.00	<1.00
Benzene	<1.0	<1.00	<1.00	<1.00	<1.00
Ethyl benzene	<1.0	<1.00	<1.00	<1.00	<1.00
Tetrachloroethylene	<1.0	<1.00	<1.00	<1.00	<1.00
Toluene	<1.0	<1.00	<1.00	<1.00	<1.00
Trichloroethylene	<1.0	<1.00	<1.00	<1.00	<1.00
Vinyl chloride	<1.0	<1.00	<1.00	<1.00	<1.00
Xylenes total	<3.0	<3.00	<3.00	<3.00	<3.00

-- Not analyzed.

Table C-2
2003 Blind Duplicate Data

(concentrations in ug/L)

Location	10	10	RPD	110	110	RPD	113	113	RPD	MGEFF	MGEFF	RPD
Date	10/30/2003	10/30/2003	1/14/2004	3/13/2003	3/13/2003	1/14/2004	8/26/2003	8/26/2003	1/14/2004	6/2/2003	6/2/2003	1/14/2004
Lab	TriMatrix	TriMatrix		TriMatrix	TriMatrix		TriMatrix	TriMatrix		TriMatrix	TriMatrix	
Dup		DUP			DUP			DUP			DUP	
1,1-Dichloroethane	<1.0	<1.0		<10	<10		<5.0	<10		<1.0	<1.0	
1,2-Dichloroethane	<1.0	<1.0		<10	<10		<5.0	<10		<1.0	<1.0	
1,2-Dichloroethylene, cis	<1.0	<1.0		73	67	8.6	19	20	5.1	2.5	1.7	38
1,2-Dichloroethylene, trans	<1.0	<1.0		<10	<10		<5.0	<10		<1.0	<1.0	
1,1,2,2-Tetrachloroethane	<1.0	<1.0		<10	<10		<5.0	<10		<1.0	<1.0	
Tetrachloroethylene	<1.0	<1.0		<10	<10		<5.0	<10		<1.0	<1.0	
1,1,1-Trichloroethane	1.2	1.2	0	<10	<10		<5.0	<10		<1.0	<1.0	
Trichloroethylene	15	16	6.5	340	350	2.9	90	100	11	12	12	0
Benzene	<1.0	<1.0		<10	<10		<5.0	<10		1.0	1.0	0
Toluene	<1.0	<1.0		<10	<10		<5.0	<10		<1.0	<1.0	
Vinyl chloride	<1.0	<1.0		<10	<10		<5.0	<10		<1.0	<1.0	
Xylenes total	<3.0	<3.0		<30	<30		<15	<30		<3.0	<3.0	
Sum Volatile Organics	16.2	17.2		413	417		109	120		15.5	14.7	

-- Not analyzed.

Appendix D

Historic Water Elevation, Water Quality Data, And Well Construction Information

List of Tables

Table D-1
Historical Water Elevation Data
Glacial Drift Wells
(elevations in ft.-MSL)

Location	1	3	4	106	107	B	Q	R	S	T	U	V	W	X	Y	Z
10/30/1981	--	--	--	--	--	843.31	--	--	--	--	--	--	--	--	--	--
02/09/1982	--	--	--	--	--	844.45	--	--	--	--	--	--	--	--	--	--
02/16/1982	843.19	--	--	--	--	842.78	--	--	--	--	--	--	--	--	--	--
02/26/1982	842.37	--	--	--	--	842.77	--	--	--	--	--	--	--	--	--	--
03/04/1982	842.37	--	--	--	--	842.84	--	--	--	--	--	--	--	--	--	--
03/12/1982	842.28	--	--	--	--	842.72	--	--	--	--	--	--	--	--	--	--
03/17/1982	842.29	--	--	--	--	842.68	--	--	--	--	--	--	--	--	--	--
03/25/1982	842.63	835.95	833.20	--	--	824.89	--	--	--	--	--	--	--	--	--	--
04/01/1982	842.56	836.08	833.23	--	--	842.96	--	--	--	--	--	--	--	--	--	--
04/05/1982	842.54	836.07	833.30	--	--	843.03	--	--	--	--	--	--	--	--	--	--
04/08/1982	842.59	836.12	833.35	--	--	843.03	--	--	--	--	--	--	--	--	--	--
04/19/1982	842.78	836.36	833.50	--	--	843.14	--	--	--	--	--	--	--	--	--	--
11/18/1982	843.70	836.48	833.89	--	--	843.56	--	--	--	--	--	--	--	--	--	--
12/01/1982	--	--	--	--	--	843.59	--	--	--	--	--	--	--	--	--	--
02/11/1983	842.96	836.16	833.53	--	--	843.30	--	--	--	--	--	--	--	--	--	--
04/06/1983	843.44	836.88	834.11	--	--	844.13	--	--	--	--	--	--	--	--	--	--
04/28/1983	--	--	--	840.25	840.19	--	--	--	--	--	--	--	--	--	--	--
06/06/1983	842.90	837.58	834.88	839.40	839.25	844.37	--	--	--	--	--	--	--	--	--	--
09/22/1983	842.67	--	--	838.80	838.68	844.14	--	--	--	--	--	--	--	--	--	--
09/26/1983	--	836.95	834.38	--	--	--	--	--	--	--	--	--	--	--	--	--
11/11/1983	842.57	826.67	824.02	838.57	--	844.01	--	--	--	--	--	--	--	--	--	--
01/09/1984	843.49	830.13	834.07	839.40	837.36	843.93	--	--	--	--	--	--	--	--	--	--
01/16/1984	--	--	--	838.48	838.41	--	--	--	--	--	--	--	--	--	--	--
02/15/1984	--	--	--	--	--	--	830.49	827.64	829.85	832.38	837.07	--	--	--	--	--
03/28/1984	- -	837.23	834.20	838.68	838.65	844.13	832.08	829.15	831.21	833.89	838.82	818.16	818.25	829.00	821.15	810.0
10/15/1985	842.68	836.57	--	--	838.42	843.89	831.58	829.00	832.00	833.96	838.11	818.61	818.49	831.59	818.93	811.33
10/28/1985	--	--	--	838.52	--	--	--	--	--	--	--	--	--	--	--	--
12/04/1985	842.38	835.19	833.40	837.12	836.96	843.86	831.22	828.73	830.95	833.37	837.30	817.99	817.96	829.02	818.84	810.36
07/06/1987	842.0	832.75	--	--	--	--	--	DRY	824.91	831.74	--	815.3	814.4	DRY	--	--
10/01/1987	842.34	834.30	--	--	--	--	--	--	826.36	832.72	--	815.93	816.10	--	--	--
04/05/1988	841.90	832.89	830.23	835.63	835.54	843.38	826.86	--	824.94	831 80	835.58	814.51	814.59	DRY	--	--
07/11/1988	841.69	832.45	--	--	--	--	826.46	DRY	824.63	832.44	--	814.03	814.03	DRY	--	--
10/26/1988	841.77	833.00	--	--	--	--	826.77	DRY	824.92	833.03	--	814.44	814.54	DRY	--	--
04/03/1989	841.74	833.30	830.79	--	835.34	843.17	827.45	DRY	825.23	832.25	835.72	814.19	814.34	DRY	--	--
07/12/1989	841.75	833.76	--	--	--	--	827.95	DRY	825.55	832.41	--	814.77	814.86	822.05	--	--
10/09/1989	--	833.98	--	--	--	--	828.26	DRY	826.45	832.23	--	815.16	815.26	DRY	--	--
10/13/1989	841.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
05/14/1990	--	833.65	830.43	--	--	--	827.08	DRY	825.92	832.14	835.86	814.64	814.38	822.07	--	--

Table D-1
Historical Water Elevation Data
Glacial Drift Wells
(elevations in ft.-MSL)

Location	1	3	4	106	107	B	Q	R	S	T	U	V	W	X	Y	Z
07/10/1990	841.90	834.35	--	836.36	836.17	844.33	828.50	DRY	827.38	832.89	--	816.65	816.75	822.95	--	--
10/08/1990	841.69	834.15	--	--	--	--	828.28	DRY	827.43	832.62	--	816.70	816.80	823.08	--	--
04/01/1991	841.36	832.92	--	--	--	842.76	827.43	--	825.96	832.14	835.35	815.60	815.69	DRY	--	--
09/25/1991	842.02	834.25	--	--	--	843.46	828.90	--	828.42	833.06	836.54	818.19	818.18	824.25	--	--
05/11/1992	841.96	834.19	--	--	--	843.40	828.80	--	828.55	833.05	836.50	817.77	817.81	823.41	--	--
11/02/1992	841.98	834.02	--	--	--	843.43	828.88	--	828.09	832.61	836.21	817.27	817.44	824.05	--	--
05/18/1993	842.00	833.85	--	--	--	843.47	828.18	--	827.04	832.56	836.22	816.13	816.29	822.55	--	--
11/22/1993	842.17	834.07	--	--	--	843.64	828.42	DRY	828.07	833.74	836.42	817.17	817.23	823.81	--	--
08/03/1994	--	--	--	--	--	--	827.96	--	--	832.78	--	816.53	816.66	822.63	--	--
09/25/1995	--	--	--	--	--	--	828.27	--	--	833.03	--	817.18	817.29	823.02	--	--
08/13/1996	--	--	--	--	--	--	828.23	--	--	833.30	--	815.94	816.10	822.86	--	--
08/19/1997	--	--	--	--	--	--	829.05	--	--	833.41	--	819.59	819.31	822.86	--	--
10/13/1998	--	--	--	--	--	--	828.16	--	--	832.46	--	817.14	817.28	822.96	--	--
12/06/1999	--	--	--	--	--	--	829.05	--	--	832.86	--	817.21	817.27	824.06	--	--
11/16/2000	--	--	--	--	--	--	827.69	DRY	826.95	832.32	--	816.91	817.06	822.36	--	--
12/04/2001	--	--	--	--	--	--	828.57	--	827.31	832.50	--	817.44	817.53	822.85	--	--
11/26/2002	--	--	--	--	--	--	828.25	--	--	832.65	--	818.38	818.27	823.32	--	--
10/27/2003	--	--	--	--	--	--	828.18	--	--	832.50	--	818.02	817.97	823.07	--	--

-- Not measured.

Table D-2
Historical Water Elevation Data
Carimona Member Wells
(elevations in ft.-MSL)

Location	8	9	10	11	12	13	108 (1)	BB	RR	SS	UU	WW
10/30/1981	--	--	--	--	--	--	--	828.09	--	--	--	--
11/24/1981	--	--	--	--	--	--	--	827.85	--	--	--	--
02/09/1982	--	--	--	--	--	--	--	829.87	--	--	--	--
02/16/1982	--	--	--	--	--	--	--	827.85	--	--	--	--
02/26/1982	--	--	--	--	--	--	--	827.77	--	--	--	--
03/04/1982	--	--	--	--	--	--	--	827.85	--	--	--	--
03/12/1982	--	--	--	--	--	--	--	828.61	--	--	--	--
03/17/1982	--	--	--	--	--	--	--	827.81	--	--	--	--
03/19/1982	--	--	--	--	--	--	--	--	827.73	--	--	--
03/25/1982	--	--	--	--	--	--	--	827.76	827.73	--	--	--
04/01/1982	--	--	--	--	--	--	--	827.89	827.76	--	--	--
04/05/1982	--	--	--	--	--	--	--	827.82	--	--	--	--
04/08/1982	--	--	--	--	--	--	--	827.82	827.57	--	--	--
04/19/1982	--	--	--	--	--	--	--	828.08	828.17	--	--	--
11/18/1982	828.91	--	--	--	--	--	--	829.07	829.12	835.43	828.85	828.91
12/01/1982	--	--	--	--	--	--	--	829.18	829.22	835.67	831.10	829.08
02/11/1983	--	--	--	--	--	--	--	828.89	828.98	834.07	828.98	828.76
02/14/1983	--	--	--	--	--	--	--	--	--	834.25	--	--
04/06/1983	--	--	--	--	--	--	--	829.69	829.72	834.13	829.54	829.48
04/28/1983	836.76	--	--	--	--	--	--	--	--	--	--	--
06/06/1983	835.81	--	--	--	--	--	--	829.96	829.97	834.29	829.86	829.77
09/22/1983	838.68	--	--	--	--	--	--	829.66	--	--	--	--
09/23/1983	835.51	--	--	--	--	--	--	--	--	823.15	829.55	829.45
09/26/1983	--	--	--	--	--	--	--	--	829.53	--	--	--
11/11/1983	829.98	830.06	830.03	830.02	832.30	--	830.12	830.15	830.08	833.90	830.24	829.95
01/09/1984	829.85	829.86	829.88	829.93	--	--	--	829.84	--	833.55	829.80	829.69
01/16/1984	830.1	830.08	830.12	830.13	831.76	--	830.65	830.12	828.99	833.50	830.02	829.94
03/28/1984	830.15	830.15	830.21	830.18	831.43	830.21	830.92	830.25	830.16	832.34	830.18	830.08
10/15/1985	830.58	830.61	830.62	830.65	832.11	830.01	830.77	830.26	830.19	831.76	830.63	830.60
12/04/1985	829.71	830.05	829.86	829.73	831.50	829.25	--	829.76	829.90	830.59	829.88	829.79
12/05/1985	--	--	--	--	--	--	812.90	--	--	--	--	--
07/06/1987	827.10	827.3	827.28	827.26	827.83	826.49	805.9	--	827.11	826.18	--	--
10/01/1987	828.79	828.69	828.72	828.79	828.63	828.14	806.06	--	828.82	827.27	--	--
04/05/1988	827.71	827.85	827.86	827.74	828.12	827.05	804.57	827.81	827.85	826.22	827.72	827.71
07/11/1988	824.91	825.12	825.07	824.97	825.40	824.36	804.45	--	825.11	824.05	--	--
10/26/1988	826.83	826.98	826.99	826.86	826.61	826.17	804.49	--	826.95	825.37	--	--
04/03/1989	827.13	827.37	827.37	827.16	827.20	826.63	807.81	827.34	827.35	825.54	827.31	827.31

Table D-2
Historical Water Elevation Data
Carimona Member Wells
(elevations in ft.-MSL)

Location	8	9	10	11	12	13	108 (1)	BB	RR	SS	UU	WW
07/12/1989	825.41	825.64	825.59	825.43	826.18	824.74	804.51	--	825.65	823.62	--	--
10/09/1989	827.32	827.52	827.82	827.37	826.70	826.78	--	--	--	825.12	--	--
10/13/1989	--	--	--	--	--	--	827.49	--	827.57	--	--	--
05/14/1990	827.06	827.38	827.26	827.31	827.52	826.65	--	--	827.41	824.77	827.28	827.27
07/10/1990	827.92	828.18	828.10	827.84	826.73	827.20	804.54	828.01	827.98	827.05	--	--
10/08/1990	828.38	828.59	828.58	828.41	828.23	827.78	804.64	--	828.48	826.74	--	--
04/01/1991	828.63	828.84	828.83	828.70	828.92	828.06	807.87	828.75	828.76	826.42	828.69	828.66
09/25/1991	829.19	829.40	829.40	829.15	828.46	828.55	804.55	829.25	829.41	826.95	829.23	831.23
01/03/1992	--	--	--	--	--	--	830.22	--	--	--	--	--
05/11/1992	828.87	829.02	829.01	828.93	829.26	828.29	805.36	828.93	829.08	826.42	828.92	828.89
11/02/1992	828.81	828.98	829.03	828.85	827.60	828.23	829.22	828.65	829.01	824.50	828.93	828.86
05/18/1993	827.37	827.38	827.58	827.39	826.95	826.72	824.46	827.16	827.48	822.62	827.40	827.04
11/22/1993	829.26	829.34	829.45	829.56	828.36	828.89	829.53	829.29	829.63	823.68	829.50	829.50
08/03/1994	827.58	827.59	827.67	827.85	826.94	--	--	--	--	822.79	827.90	--
09/25/1995	829.76	829.98	829.96	829.78	828.18	--	--	--	829.95	824.46	829.83	829.79
01/03/1996	--	829.53	--	--	--	--	--	--	--	--	--	--
08/13/1996	827.95	828.16	827.94	827.99	827.20	--	--	--	828.14	821.98	827.95	828.01
08/19/1997	830.92	831.24	831.84	831.99	829.35	--	--	--	830.38	824.40	832.33	830.26
10/13/1998	831.61	831.78	831.77	831.69	830.10	--	--	--	--	825.97	831.68	--
12/22/1998	--	--	--	--	--	--	--	--	830.25	822.95	--	830.12
12/23/1998	--	--	--	--	--	--	--	--	832.75	829.02	--	832.63
12/06/1999	831.15	831.40	831.41	831.42	829.92	--	--	--	831.36	824.39	831.41	831.28
11/16/2000	829.07	829.17	829.23	828.89	827.88	--	--	--	829.01	822.27	828.87	828.92
11/21/2000	--	--	--	--	--	--	--	--	829.01	822.83	--	828.92
11/22/2000	--	--	--	--	--	--	--	--	831.27	828.17	--	831.18
12/04/2001	829.90	830.10	830.10	829.95	828.78	--	--	--	830.04	823.32	829.92	829.94
12/05/2001	--	--	--	--	--	--	--	--	832.23	829.43	--	832.12
11/26/2002	831.06	831.28	831.27	831.14	829.94	--	--	--	831.21	823.87	831.09	830.91
11/27/2002	--	--	--	--	--	--	--	--	833.67	830.05	--	833.57
10/27/2003	831.22	831.27	831.46	831.08	825.42	--	--	--	831.22	824.26	831.09	831.10
10/28/2003	--	--	--	--	--	--	--	--	833.52	829.13	--	833.41

-- Not measured

(1) Carimona pump-out well

Table D-3
Historical Water Elevation Data
Magnolia Member Wells
(elevations in ft.-MSL)

Location	OO	QQ	TT	VV	ZZ	14
03/09/1982	823.60	--	--	--	--	--
03/17/1982	--	823.25	--	--	--	--
03/19/1982	823.60	823.34	--	--	--	--
03/25/1982	823.48	823.29	--	--	--	--
04/01/1982	823.64	823.37	--	--	--	--
04/08/1982	823.72	823.42	--	--	--	--
04/19/1982	823.99	823.75	--	--	--	--
11/18/1982	824.96	824.61	822.41	825.57	--	--
12/01/1982	824.79	824.41	822.59	825.76	--	--
02/11/1983	825.51	823.57	822.34	825.50	--	--
02/14/1983	--	--	822.62	--	--	--
04/06/1983	825.29	823.00	822.90	826.32	--	--
06/06/1983	825.80	825.61	823.60	826.43	--	--
09/23/1983	--	--	829.55	826.18	--	--
09/26/1983	824.71	825.20	--	--	--	--
11/11/1983	825.69	825.44	823.44	826.52	--	--
01/16/1984	825.46	--	823.26	826.32	--	--
03/28/1984	825.78	825.61	823.54	826.64	830.2	--
02/14/1985	--	--	822.62	--	--	--
10/15/1985	825.76	825.46	823.26	826.99	830.67	--
12/04/1985	825.57	825.39	822.74	826.24	830.65	--
02/05/1986	824.74	824.49	822.10	825.60	830.05	--
04/01/1986	824.75	824.52	822.10	825.60	829.65	--
06/06/1986	824.89	824.68	822.31	825.66	828.31	--
08/01/1986	824.86	824.71	822.32	825.65	829.44	--
10/22/1986	825.49	825.24	822.90	826.33	830.45	--
04/03/1987	823.87	823.66	821.46	824.83	829.25	--
07/06/1987	822.85	822.53	820.42	823.42	827.93	--
10/01/1987	824.24	823.96	821.77	824.99	829.98	--
04/05/1988	823.31	823.03	820.91	824.14	828.44	--
07/11/1988	821.14	820.82	818.88	821.73	825.73	--
10/26/1988	822.46	822.11	820.13	823.34	827.57	--
04/03/1989	822.82	822.47	820.46	823.75	828.72	--
07/12/1989	821.66	821.32	819.38	822.36	826.05	--
10/09/1989	823.07	822.70	820.69	823.98	828.20	--
05/14/1990	822.79	822.51	820.42	823.65	828.04	--
07/10/1990	823.67	823.36	821.35	824.57	828.65	--

Table D-3
Historical Water Elevation Data
Magnolia Member Wells
(elevations in ft.-MSL)

Location	OO	QQ	TT	VV	ZZ	14
10/08/1990	823.99	823.73	821.56	824.88	829.16	--
04/01/1991	824.52	824.25	821.75	825.46	829.44	--
09/25/1991	825.50	825.19	823.05	826.28	829.94	--
05/11/1992	825.10	824.82	822.63	825.87	829.66	--
11/02/1992	820.27	820.33	817.29	822.01	829.61	--
05/18/1993	820.42	818.46	815.64	820.33	828.12	--
11/22/1993	820.28	820.31	817.42	822.23	830.26	--
08/03/1994	--	818.90	816.30	--	--	--
09/25/1995	820.19	820.23	817.47	822.25	--	--
08/13/1996	818.66	818.66	816.01	820.74	--	--
08/19/1997	821.07	827.46	818.24	823.09	--	--
10/13/1998	--	824.01	822.04	--	--	821.63
12/22/1998	819.57	--	816.60	822.00	--	--
12/23/1998	827.92	--	826.14	828.93	--	--
12/06/1999	821.05	821.10	818.23	823.42	--	817.53
11/16/2000	818.70	818.76	815.99	820.93	--	815.41
11/21/2000	818.70	--	816.02	820.93	--	--
11/22/2000	826.21	--	824.80	827.07	--	--
12/04/2001	819.80	819.93	816.88	822.23	--	816.46
12/05/2001	827.37	--	825.83	828.32	--	--
11/26/2002	820.41	820.61	817.15	823.23	--	816.54
11/27/2002	828.81	--	827.14	829.88	--	--
10/27/2003	820.43	820.70	817.16	823.44	--	816.50
10/28/2003	828.52	--	826.86	829.63	--	--

-- Not measured

Table D-4
Historical Water Elevation Data
St. Peter Sandstone Wells
(elevations in ft.-MSL)

Location	200	201	202	203
10/15/1985	--	779.64	751.98	752.05
12/04/1985	758.68	--	752.60	757.58
12/05/1985	--	780.24	--	--
07/06/1987	760.63	777.82	753.86	753.43
10/01/1987	760.47	779.35	753.28	753.42
04/05/1988	761.89	780.40	753.36	753.37
07/11/1988	758.57	773.59	752.28	752.10
10/26/1988	760.78	778.42	752.53	752.43
04/03/1989	762.22	779.61	753.67	753.57
07/12/1989	758.96	775.98	752.77	752.37
10/09/1989	760.36	777.25	752.70	752.43
05/14/1990	761.79	778.59	753.72	753.29
07/10/1990	759.54	776.15	753.16	752.61
10/08/1990	759.90	776.67	752.44	751.93
04/01/1991	761.75	778.01	753.50	752.94
09/25/1991	761.38	778.26	753.38	752.96
05/11/1992	762.57	778.37	754.73	754.01
11/02/1992	763.44	780.11	754.93	754.23
05/18/1993	763.12	778.52	754.94	754.05
11/22/1993	764.00	780.11	754.86	753.79
08/03/1994	760.90	--	--	--
12/20/1994	764.19	--	--	--
09/25/1995	763.78	--	--	--
08/13/1996	762.45	--	--	--
07/02/1997	763.31	779.21	755.20	754.47
08/19/1997	762.59	777.82	753.86	753.49
10/13/1998	763.58	778.53	753.55	753.15
12/06/1999	764.97	779.76	754.04	753.68
11/16/2000	765.75	779.48	754.03	754.02
12/04/2001	766.10	780.84	754.72	754.08
11/26/2002	766.58	779.72	754.15	753.74
10/27/2003	766.23	779.59	754.56	754.41

-- Not analyzed.

1/14/2004 11:05 AM
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Table D-5
Historical Water Elevation Data
Glacial Drift Pump-Out Wells
(elevations in ft.-MSL)

Location	109	110 (1)	111 (2)	112 (2)	113 (2)
10/15/1985	837.21	835.62	829.25	829.10	829.20
12/04/1985	--	829.11	828.83	828.59	828.77
12/05/1985	828.19	--	--	--	--
07/06/1987	831.26	829.63	816.75	811.67	814.24
10/01/1987	829.94	828.98	813.70	814.64	815.68
04/05/1988	828.90	823.37	808.70	811.81	813.00
07/11/1988	831.00	822.35	815.35	807.91	812.63
10/26/1988	829.99	829.52	815.62	811.68	813.15
04/03/1989	831.41	828.90	818.43	811.80	817.22
05/14/1990	--	830.71	818.20	807.67	817.96
07/10/1990	827.27	831.02	819.07	811.77	818.80
10/08/1990	829.63	831.51	819.23	811.03	819.12
04/01/1991	826.58	826.60	817.98	808.26	817.91
09/25/1991	830.56	829.33	820.19	816.07	820.27
01/03/1992	826.56	828.73	819.50	812.12	819.42
05/11/1992	827.20	829.41	819.34	812.17	820.21
11/02/1992	827.67	830.60	820.15	815.62	820.43
05/18/1993	827.24	829.56	818.46	807.05	818.74
11/22/1993	828.06	830.81	819.26	810.43	819.83
08/13/1996	835.18	829.93	817.84	816.22	818.41
08/19/1997	828.12	830.40	819.10	813.22	819.62
10/13/1998	827.02	829.08	817.79	807.37	818.82
12/06/1999	835.37	--	825.82	815.79	820.24
11/16/2000	828.78	--	817.09	809.53	817.81
12/04/2001	828.27	--	818.03	812.83	818.51
11/26/2002	828.17	828.65	818.13	816.88	819.17
10/27/2003	829.02	827.95	817.68	807.87	819.06

-- Not analyzed.
(1) Site Glacial Drift pump-out well
(2) Down-Gradient drift pump-out wells

Table D-6
Historical Water Quality Data
Glacial Drift Wells
Trichloroethylene
[Consent Order Limit: 270 ug/L]
(concentrations in ug/L)

Location	B	Q	R	S	T	U	V	W	X	1	3	4
Apr-82	6.0	--	--	--	--	--	--	--	--	6.0	780	4.5
Dec-82	1100	--	--	--	--	--	--	--	--	--	--	--
Dec-83	780	--	--	--	--	--	--	--	--	27	800	380
Feb-84	--	<1.3	670	770	<1.3	<1.3	--	--	--	--	--	--
Mar-84	--	--	--	--	--	--	78	7.5	2.2	--	--	--
Oct-85	1200	20	1100	740	<0.3	2.6	220	8.1	2.1	1.4	1100	--
Nov-85	--	--	--	--	--	--	--	--	--	--	--	440
Dec-85	1100	14	820	750	<0.8	3.9	140	32	5.0	1.5	770	440
Feb-86	1300	11	31	650	<0.5	2.9	180	14	0.9 s	1.4 s	680	200
Apr-86	1000	13	DRY	1100	<0.2	3.2	170	18	0.9	3.1	1200	210
Jun-86	1100	4.7	160	930	<0.2	1.6	97	10	0.9	8.1	1300	180
Aug-86	1000	5.6	DRY	880	<0.2	16	130	18	0.7	9.3	890	280
Oct-86	--	3.2	--	620	<0.2	1.4	92	6.2	0.5	0.9	720	200
Nov-86	830	--	--	--	--	--	--	--	--	--	--	--
Apr-87	800	2.6	DRY	650	<0.2	2.7	160	24	--	2.7	740	120
Jul-87	--	--	DRY	740	--	--	180	42	--	0.4	770	--
Oct-87	--	--	--	1000	--	--	140	56	--	0.8	960	--
Apr-88*	330	0.86	DRY	460	<0.50	--	160	43	DRY	<0.50	440	55
Jul-88*	--	--	DRY	160	--	--	33	8.1	--	0.5	140	--
Oct-88*	--	--	DRY	110	--	--	37	26	--	<0.5	98	--
Apr-89	250	1.1	--	860	<0.5	--	130	57	--	0.8	320	55
Jul-89	--	--	--	620	--	--	120	22	--	0.6 s	340	--
Oct-89	--	--	--	630	--	--	120	25	--	0.5	530	--
May-90	--	0.7	--	710	<0.5	--	110	31	--	--	520	77
Jul-90	330	--	--	200	--	--	120	<0.5	--	0.8	770	--
Oct-90	--	--	--	770	--	--	110	11	--	<0.5	310	--
Apr-91	340	0.7	--	870	<0.5	2.0	130	40	--	3.1	1500	--
Sep-91	--	--	--	480	--	--	73	20	--	1.3	300	--
May-92	510	<1.0	--	510	<1.0	<1.0	63	5.9	<1.0	2.2	400	--
Nov-92	--	--	--	770	--	--	83	1.3	--	0.5	170	--
May-93	580	<0.50	--	390	<0.50	0.7	68	2.9	<0.50	<0.50	470	--
Nov-93	--	--	--	400	--	--	100	2.9	--	<0.50	740	--
Aug-94	--	<0.5	--	--	<0.5	--	69	8.4	<0.5	--	--	--
Sep-95	--	<0.50	--	--	<0.50	--	94	0.80	<0.50	--	--	--
Aug-96	--	<0.5	--	--	<0.5	--	100	1.4	<0.5	--	--	--
Aug-97	--	<0.5	--	--	<0.5	--	19	1.5	<0.5	--	--	--
Oct-98	--	<0.5	--	--	<0.5	--	140	15	<0.5	--	--	--
Dec-99	--	<1.0	--	--	<1.0	--	83	15	<1.0	--	--	--
Nov-00	--	<1.0	--	--	<1.0	--	97	17	<1.0	--	--	--
Dec-01	--	1.6	--	--	<1.0	--	91	14	<1.0	--	--	--
Dec-02	--	<1.0	--	--	<1.0	--	50	17	<1.0	--	--	--
Oct-03	--	<1.0	--	--	<1.0	--	14	14	<1.0	--	--	--

-- Not analyzed

s Potential false positive value based on statistical analysis of blank sample data.

* The 1988* analytical data has been determined to be unreliable due to laboratory equipment and method performance problems.

2/27/2004 10:10 AM
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Table D-7
Historical Water Quality Data
Carimona Member Wells
Trichloroethylene
[Consent Order Limit: 27 ug/L]
(concentrations in ug/L)

Location	8	9	10	11	12	13	108	BB	RR	SS	UU	WW
May-82	--	--	--	--	--	--	--	--	46	--	--	--
Jun-82	--	--	--	--	--	--	--	1600	--	--	--	--
Dec-82	--	--	--	--	--	--	--	1600	43	<0.05	78	2100
Apr-83	820	--	--	--	--	--	--	--	--	--	--	--
Nov-83	--	--	--	--	--	--	1100	--	--	--	--	--
Dec-83	96	<0.05	2.6	120	<1.5	--	--	1400	33	<1.5	81	1700
Jan-84	--	--	--	--	--	--	1000	--	--	--	--	--
Jan-84	--	--	--	--	--	--	1100	--	--	--	--	--
Jan-84	--	--	--	--	--	--	1100	--	--	--	--	--
Jan-84	--	--	--	--	--	--	1100	--	--	--	--	--
Mar-84	--	--	--	--	--	25	--	--	--	--	--	--
Oct-85	2300	17	1500	2.7	--	1.9	--	1900	110	0.4 s	150	2300
Nov-85	--	--	--	--	<0.2	--	1500	--	--	--	--	--
Dec-85	650	10	1100	520	<0.8	21	820	1100	95	1.2	79	1200
Feb-86	240	6.7	420	250	<0.5	9.7	700	1300	88	<0.5	71	740
Apr-86	180	8.0	290	120	0.5	120	750	2200	170	0.4	81	540
Jun-86	140	6.1	280	58	<0.2	130	640	2100	85	0.3	37	290
Aug-86	160	6.7	270	67	0.2	14	580	1800	100	0.3	45	220
Oct-86	--	5.4	--	40	<0.2	0.5	540	--	--	<0.2	36	--
Nov-86	110	--	220	--	--	--	--	1300	100	--	--	290
Apr-87	86	5.1	120	160	<0.2	140	450	1100	110	1.2	12	290
Jul-87	--	0.6	150	25	<0.2	--	580	--	--	--	--	--
Oct-87	--	9.5	170	180	<0.5	--	560	--	--	--	--	--
Apr-88*	160	4.5	56	79	<0.5	<0.50	200	530	220	<0.50	23	320
Jul-88*	--	1.7	34	0.3	<0.5	--	96	--	--	--	--	--
Oct-88*	--	10	58	0.7	1.0 s	--	87	--	--	--	--	--
Apr-89	380	9.8	160	110	<0.5	110	530	340	180	1.3	38	530
Jul-89	--	9.9	99	3.6	2.1	--	340	--	--	--	--	--
Oct-89	--	12	140	5.0	<0.5	--	--	--	--	--	--	--
Dec-89	--	--	--	--	--	--	490	--	--	--	--	--
May-90	100	8.5	150	<0.5	0.7	110	570	--	60	4.1	35	450
Jul-90	--	43	180	16	<0.5	--	400	530	--	--	--	--
Oct-90	--	9.4	130	240	<0.5	--	420	--	--	--	--	--
Apr-91	80	7.3	110	8.7	<0.5	<0.5	710	1100	150	4.5	64	420
Sep-91	--	10	120	3.2	<0.5	--	76	--	--	--	--	--
May-92	47	3.2	58	190	<1.0	71	380	870	90	2.2	23	700
Nov-92	--	2.4	59	66	<0.5	--	--	--	--	--	--	--
May-93	92	1.9	46	120	<0.50	26	--	940	93	2.5	29	130
Jun-93	--	--	--	--	--	--	640	--	--	--	--	--
Nov-93	--	0.78	43	180	<0.50	--	300	--	--	--	--	--
Aug-94	38	0.81	20	21	<0.5	--	--	--	--	1.0	8.6	--
Sep-95	40	--	38	3.3	<0.50	--	--	--	--	0.89	6.0	--
Jan-96	--	<0.50	--	--	--	--	--	--	--	--	--	--
Aug-96	35	3.0	24	17	<0.5	--	--	--	--	2.2	47	--

Table D-7
Historical Water Quality Data
Carimona Member Wells
Trichloroethylene
[Consent Order Limit: 27 ug/L]
(concentrations in ug/L)

Location	8	9	10	11	12	13	108	BB	RR	SS	UU	WW
Aug-97	36	3.7	34	12	<0.5	--	--	--	--	1.4	48	--
Oct-98	44	4.8	42	16	<0.5	--	--	--	--	<0.5	23	--
Dec-99	30	15	32	55	<1.0	--	--	--	--	<1.0	44	--
Nov-00	53	<1.0	23	60	<1.0	--	--	--	--	<1.0	50	--
Dec-01	57	2.2	27	70	1.1	--	--	--	--	2.0	56	--
Dec-02	26	1.1	21	46	<1.0	--	--	--	--	2.0	26	--
Oct-03	--	1.1	15	48	1.7	--	--	--	--	2.9	25	--

-- Not analyzed.

* The 1988* analytical data has been determined to be unreliable due to laboratory equipment and method performance problems.

s Potential false positive value based on statistical analysis of blank sample data.

Table D-8
Historical Water Quality Data
Magnolia Member Wells
Trichloroethylene
[Consent Order Limit: 27 ug/L]
(concentrations in ug/L)

Location	OO	QQ	TT	VV	ZZ	14
May-82	15	--	--	--	--	--
Jun-82	--	13	--	--	--	--
Dec-82	56	13	8.9	--	--	--
Mar-84	--	--	--	--	14	--
Oct-85	49	2.9	26	140	85	--
Dec-85	31	7.3	19	93	28	--
Feb-86	36	5.2	27	92	200	--
Apr-86	120	6.0	33	280	440	--
Jun-86	27	1.0	20	83	91	--
Aug-86	19	0.6	40	99	39	--
Oct-86	32	6.4	23	77	190	--
Apr-87	130	2.5	34	63	230	--
Apr-88*	160	<0.50	16	63	130	--
Jul-88*	20	--	--	9.4	--	--
Oct-88*	34	--	--	25	83	--
Oct-88*	--	--	--	--	43	--
Apr-89	90	3.7	30	59	180	--
Jul-89	70	--	--	87	34	--
Oct-89	67	--	--	150	33	--
May-90	58	3.4	26	33	120	--
Jul-90	62	--	--	27	61	--
Oct-90	30	--	--	46	36	--
Apr-91	5.1	<0.5	140	75	170	--
Sep-91	5.0	--	--	48	30	--
May-92	3.1	--	58	60	88	--
Jun-92	--	4.7	--	--	--	--
Nov-92	17	--	6.4	29	96	--
May-93	11	13	0.7	190	73	--
Nov-93	5.7	--	1.8	150	70	--
Aug-94	--	3.2	1.4	--	--	--
Sep-95	--	3.7	1.5	--	--	--
Aug-96	--	2.2	1.0	--	--	--
Aug-97	--	1.8	1.9	--	--	--
Oct-98	--	<0.5	0.5	--	--	<0.5
Dec-99	--	<1.0	6.4	--	--	4.9
Nov-00	--	<1.0	7.8	--	--	8.2
Dec-01	--	<1.0	8.4	--	--	9.6
Dec-02	--	<1.0	8.7	--	--	8.1
Oct-03	--	<1.0	5.6	--	--	4.7

-- Not analyzed.

* The 1988* analytical data has been determined to be unreliable due to laboratory equipment and method performance problems.

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Table D-9
Historical Water Quality Data
St. Peter Sandstone Wells
Trichloroethylene
(concentrations in ug/L)

Location	200	201	202	203
Oct-85	--	0.5 s	--	--
Nov-85	120	--	2.6	0.5 s
Dec-85	100	2.9	2.0	1.2
Feb-86	72	<0.5	1.9	2.5
Apr-86	130	<0.2	0.2	0.6
Jun-86	110	<0.2	0.2 s	0.5
Aug-86	110	<0.2	2.7	0.5
Oct-86	78	<0.2	<0.2	0.5
Apr-87	100	0.1	<0.2	0.7
Jul-87	120	--	--	--
Oct-87	160	--	--	--
Apr-88*	89	<0.50	<0.50	<0.50
Jul-88*	33	--	--	--
Oct-88*	56	--	--	--
Apr-89	150	<0.5	<0.5	2.1
Jul-89	130	--	--	--
Oct-89	120	--	--	--
May-90	110	<0.5	0.8	2.8
Jul-90	11 **	--	--	--
Oct-90	130	--	--	--
Apr-91	140	<0.5	<0.5	3.0
Sep-91	77	--	--	--
May-92	61	<1.0	<1.0	1.2
Nov-92	64	--	--	--
May-93	89	<0.50	<0.50	1.4
Nov-93	19	--	--	--
Dec-94	110	--	--	--
Sep-95	110	--	--	--
Aug-96	96	--	--	--
Jul-97	98	<0.5	<0.5	5.4
Aug-97	97	<0.5	--	5.0
Dec-97	--	--	<0.5	--
Oct-98	58	--	<0.5	4.5
Dec-99	30	--	<1.0	4.1
Nov-00	<1.0	--	<1.0	7.2
Dec-01	6.4	--	<1.0	15
Dec-02	9.7	--	<1.0	24
Oct-03	4.2	--	<1.0	28

-- Not analyzed.

* The 1988* analytical data has been determined to be unreliable due to laboratory equipment and method performance problems.

** Estimated value, QA/QC criteria not met.

s Potential false positive value based on statistical analysis of blank sample data.

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Table D-10
Historical Water Quality Data
Prairie Du Chien/Jordan Well
Trichloroethylene
(concentrations in ug/L)

Location	HENKEL
Oct-85	71
Dec-85	44
Feb-86	48
Apr-86	OFF
Jun-86	OFF
Aug-86	54
Nov-86	6.9
Apr-87	7.1
Jul-87	20
Oct-87	6.7
Apr-88*	13
Jul-88*	1.5
Oct-88*	8.0
Apr-89	12
Jul-89	10
Oct-89	11
Jul-91	49
Sep-91	18
May-92	31
Nov-92	<0.5
May-93	16
Nov-93	35
Aug-94	6 1
Dec-95	6.5
Aug-96	9.2
Aug-97	13
Oct-98	8.2
Dec-99	<1.0
Nov-00	<1.0
Dec-01	7.1
Nov-02	<1.0
Oct-03	4.0

* The 1988* analytical data has been determined to be unreliable due to laboratory equipment and method performance problems.

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Table D-11
Historical Water Quality Data
Site Pump-Out and Treatment System
Downgradient Pump-Out System
Trichloroethylene
(concentrations in ug/L)

Location	Discharge (1)	Influent (2)	Effluent 100/50 (3)	MG-Effluent (4)
Nov-85	160	1200	13	--
Nov-85	--	970	6.9	--
Dec-85	140	690	6.1	--
Dec-85	--	870	12	--
Dec-85	--	670	6.5	--
Jan-86	--	1100	17	--
Feb-86	290	760	8.4	--
Mar-86	--	1700	14	--
Apr-86	400	860	11	--
Jun-86	250	--	--	--
Aug-86	350	870	6.7	--
Oct-86	190	610	1.0	--
Mar-87	320	730	6.8	--
Apr-87	170	530	8.3	--
Jul-87	310	660	2.8	--
Oct-87	230	720	<0.5	--
Nov-87	--	490	2.6	--
Jan-88*	300	470	4.4	--
Apr-88*	210	370	5.3	--
Apr-88*	--	600	--	--
Jul-88*	70	160	1.2	--
Oct-88*	64	--	--	--
Nov-88*	--	84	3.7	--
Jan-89	210	390	9.8	--
Apr-89	200	440	13	--
Jul-89	170	380	20	--
Oct-89	110	--	--	--
Dec-89	--	140	190	--
Jan-90	140	380	96	--
May-90	220	370	1.2	--
Jul-90	180	310	0.9	--
Oct-90	100	360	2.9	--
Jan-91	150	430	0.8	--
Apr-91	290	890	1.0	--
Jul-91	210	370	<0.5	--
Sep-91	110	320	<0.5	--
Jan-92	99	260	<1.0	--
May-92	55	320	8.3	--
Aug-92	78	420	15	--
Nov-92	110	450	28	32
Mar-93	130	270	<0.50	--
May-93	82	450 h	<0.50	22
Aug-93	83	530	<0.50	33
Nov-93	78	630	<0.50	24
Mar-94	140	540	<0.5	25
Jun-94	60	430	<0.5	23
Aug-94	58	310	<0.5	17
Dec-94	65	400	<0.50	18

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Table D-11
Historical Water Quality Data
Site Pump-Out and Treatment System
Downgradient Pump-Out System
Trichloroethylene
(concentrations in ug/L)

Location	Discharge (1)	Influent (2)	Effluent 100/50 (3)	MG-Effluent (4)
Mar-95	93	650	7.6	26
May-95	87	580	20	25
Sep-95	53	450	0.63	15
Dec-95	68	410	2.7	15
Mar-96	63	360	38	18
Jul-96	77	390	1.0	21
Aug-96	40	400	64	19
Nov-96	59	370	<0.5	22
Feb-97	89	390	1.8	22
May-97	90	390	3.8	23
Aug-97	82	370	68	17
Dec-97	64	410	38	19
Jan-98	56	370	0.5	19
Apr-98	52.1	384.5	2.0	19.9
Aug-98	125.2	442.2	<0.5	30.5
Oct-98	59	418.6	200	40
Jan-99	74	315	33	18.6
Jun-99	64	280	140	16.6
Aug-99	--	280	130	16
Dec-99	56	--	--	17.4
Mar-00	--	--	<1.0	--
Apr-00	32	280	<1.0	18
Sep-00	94	300	<1.0	21
Nov-00	--	--	<1.0	--
Feb-01	--	--	<1.0	--
May-01	75	230	<1.0	15
Aug-01	--	--	<1.0	--
Nov-01	--	--	<1.0	--
Feb-02	--	--	<1.0	--
May-02	60	240	1.3	12
Aug-02	68	210	2.9	13
Nov-02	--	--	<1.0	--
Mar-03	--	--	<1.0	--
Jun-03	44	220	<1.0	12
Aug-03	--	--	<1.0	--
Oct-03	48	200	<1.0	12

-- Not analyzed.

(1) Flow rate weighted composite sample (pump-out wells 111, 112, and 113)

(2) Flow rate weighted composite sample (pump-out wells 108, 109, and 110 from 1985 to 1993, pump-out wells 109 and 110 from 1994 to present).

(3) Effluent from treatment system. NPDES daily limit: 100 ug/L and NPDES annual average limit: 50 ug/L.

(4) Flow rate weighted composite sample (Effluent from site pump-out wells MG1 and MG2).

* The 1988 analytical data has been determined to be unreliable due to laboratory equipment and method performance problems.

h EPA sample extraction or analysis holding time was exceeded.

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING SEALING RECORD

Minnesota Statutes, Chapter 103I

Minnesota Well and Boring Sealing No. H 217955

Minnesota Unique Well No. or W-series No. (Leave blank if not known) 196721

WELL OR BORING LOCATION

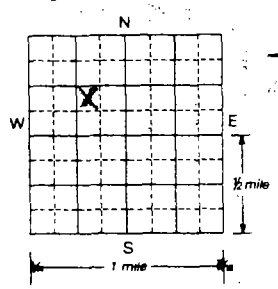
County Name: Hennepin

Township Name	Township No.	Range No.	Section No.	Fraction (sm → lg)
S	29	23	19	NW SE NW

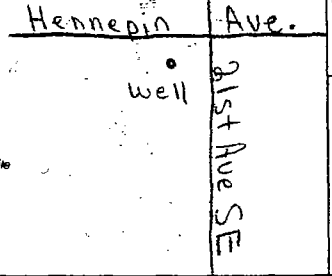
GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds; Longitude ____ degrees ____ minutes ____ seconds

Numerical Street Address or Fire Number and City of Well or Boring Location: 2010 East Hennepin Avenue Minneapolis MN 55413

Show exact location of well or boring in section grid with "X"



Sketch map of well or boring location, showing property lines, roads, and buildings.



PROPERTY OWNER'S NAME/COMPANY NAME: BHD Holdings

Property owner's mailing address if different than well location address indicated above: 2010 East Hennepin Avenue Minneapolis MN 55413

WELL OWNER'S NAME/COMPANY NAME: General Mills

Owner's mailing address if different than property owner's address indicated above: arr Engineering) West 77th Street Minneapolis MN 55435-4808

GEOLOGICAL MATERIAL	COLOR	HARDNESS OR FORMATION	FROM	TO
If not known, indicate estimated formation log from nearby well or boring				
Topsoil	Grey		0	2
Sandy Clay	Grey		2	12
Course ledge and boulders	Grey		12	20
Sand	Dk.Grey		20	28

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING

IMPORTANT-FILE WITH PROPERTY ... 217955

Date Sealed: 11/21/03

Date Well or Boring Constructed: 12/14/1981

Depth Before Sealing: 28 ft.

Original Depth: 28 ft.

AQUIFER(S): ■ Single Aquifer ☐ Multiaquifer

WELL/BORING: ☐ Water Supply Well ■ Monit. Well ☐ Env. Bore Hole ☐ Other

STATIC WATER LEVEL: ☐ Measured ■ Estimated 23 ft. ■ below ☐ above land surface

CASING TYPE(S): ■ Steel ☐ Plastic ☐ Tile ☐ Other

WELLHEAD COMPLETION

Outside: ☐ Well House ☐ Pitless Adapter/Unit ☐ Well Pit ☐ Buried

Inside: ☐ Basement Offset ☐ Well Pit ☐ Buried

Outside: Above Grade

CASING(S)

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
4 in.	from 0 to 18 ft.	☐ Yes ■ No	■ Yes ☐ No ☐ Unknown
____ in.	from ____ to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
____ in.	from ____ to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE: Screen from 18 to 28 ft. Open Hole from ____ to ____ ft.

OBSTRUCTIONS: ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ■ No Obstruction

Type of Obstructions (Describe): ____

Obstructions removed? ☐ Yes ☐ No Describe: ____

PUMP: Type: ____ ☐ Removed ■ Not Present ☐ Other: ____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:

■ No Annular Space Exists ☐ Annular space grouted with tremie pipe ☐ Casing Perforation/Removal

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

Type of perforator: ____

☐ Other: ____

GROUTING MATERIAL(S) (One bag of cement = 94 lbs., one bag of bentonite = 50 lbs.)

Grouting Material: Cement from ____ to ____ ft. ____ yards 2.5 bags

____ from ____ to ____ ft. ____ yards ____ bags

____ from ____ to ____ ft. ____ yards ____ bags

OTHER WELLS AND BORINGS: Other unsealed and unused well or boring on property? ☐ Yes ■ No How many? ____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

T.L. Stevens Well Company — Contractor Business Name

27194 — License or Registration No.

Authorized Representative Signature

11/26/03 — Date

Joe Stevens

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING SEALING RECORD

Minnesota Statutes, Chapter 103I

Minnesota Well and Boring Sealing No.
Minnesota Unique Well No. or W-series No. (Leave blank if not known)

H 217959

WELL OR BORING LOCATION

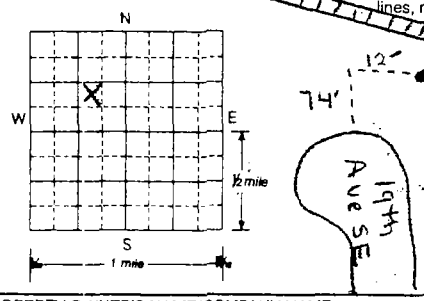
County Name: Hennepin

Township Name	Township No.	Range No.	Section No.	Fraction (sm → lg)
S	29	23	19	NW SE NW

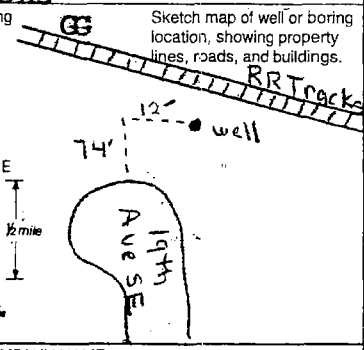
GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds; Longitude ____ degrees ____ minutes ____ seconds

Numerical Street Address or Fire Number and City of Well or Boring Location
1083 19th Avenue SE
Minneapolis MN 55413

Show exact location of well or boring in section grid with "X"



Sketch map of well or boring location, showing property lines, roads, and buildings.



PROPERTY OWNER'S NAME/COMPANY NAME
Frederick Puzak
PO Box 158
Spring Park MN 55384

WELL OWNER'S NAME/COMPANY NAME
General Mills

Owner's mailing address if different than property owner's address indicated above
RR Engineering
West 77th Street
Minneapolis MN 55435-4808

GEOLOGICAL MATERIAL	COLOR	HARDNESS OR FORMATION	FROM	TO
If not known, indicate estimated formation log from nearby well or boring				
Sand			0	4
Peat			4	8
Sand			8	30
Claystone			30	53
Platteville	Yellow		53	69

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING

IMPORTANT-FILE WITH PROPERTY PAPERS WELL OWNER COPY H 217959

Date Sealed: 11/21/03
Date Well or Boring Constructed: 10/27/1981

Depth Before Sealing: 69 ft.
Original Depth: 69 ft.

AQUIFER(S)
☒ Single Aquifer ☐ Multiaquifer

WELL/BORING
☐ Water Supply Well ☒ Monit. Well
☐ Env. Bore Hole ☐ Other

STATIC WATER LEVEL
☒ Measured ☐ Estimated
28 ft. ☒ below ☐ above land surface

CASING TYPE(S)
☐ Steel ☒ Plastic ☐ Tile ☐ Other

WELLHEAD COMPLETION
Outside: ☐ Well House ☐ Pitless Adapter/Unit ☐ Well Pit ☐ Buried
Inside: ☐ Basement Offset ☐ Well Pit ☐ Buried
Outside: Above Grade Cover Pipe

CASING(S)

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
1.5 in.	from 0 to 69 ft.	☐ Yes ☒ No	☐ Yes ☐ No ☒ Unknown
____ in.	from ____ to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
____ in.	from ____ to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE
Screen from ____ to ____ ft. Open Hole from ____ to ____ ft.

OBSTRUCTIONS
☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☒ No Obstruction
Type of Obstructions (Describe)
Obstructions removed? ☐ Yes ☐ No Describe

PUMP
Type
☐ Removed ☒ Not Present ☐ Other

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:
☒ No Annular Space Exists ☐ Annular space grouted with tremie pipe ☐ Casing Perforation/Removal
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
Type of perforator
☐ Other

GROUTING MATERIAL(S) (One bag of cement = 94 lbs., one bag of bentonite = 50 lbs.)
Grouting Material: Cement from 0 to 69 ft. ____ yards 1.25 bags
____ from ____ to ____ ft. ____ yards ____ bags
____ from ____ to ____ ft. ____ yards ____ bags

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on property? ☐ Yes ☒ No How many?

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION
This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

T.L. Stevens Well Company — 27194
Contractor Business Name — *License or Registration No.*

Rene Stevens — 11/26/03
Authorized Representative Signature — *Date*

Joe Stevens
Name of Person Sealing Well or Boring

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING SEALING RECORD

Minnesota Statutes, Chapter 103I

Minnesota Well and Boring Sealing No. / Minnesota Unique Well No. or W-series No. (Leave blank if not known): H 217958

WELL OR BORING LOCATION

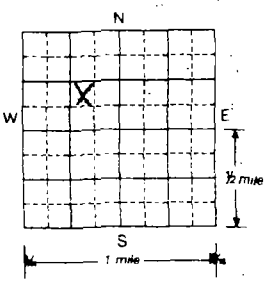
County Name: Hennepin

Township Name	Township No.	Range No.	Section No.	Fraction (smallest → largest)
St. Louis Park	29	23	19	NW SE NW

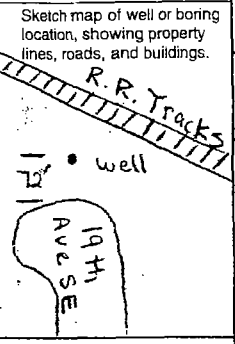
GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds; Longitude ____ degrees ____ minutes ____ seconds

Numerical Street Address or Fire Number and City of Well or Boring Location: 1083 19th Avenue SE Minneapolis MN 55413

Show exact location of well or boring in section grid with "X"



Sketch map of well or boring location, showing property lines, roads, and buildings.



Date Sealed: 11/21/03

Date Well or Boring Constructed: Unknown

Depth Before Sealing: 24 ft.

Original Depth: Unknown ft.

AQUIFER(S): ■ Single Aquifer ☐ Multiaquifer

WELL/BORING: ☐ Water Supply Well ■ Monit. Well ☐ Env. Bore Hole ☐ Other ____

STATIC WATER LEVEL: ■ Measured ☐ Estimated; 17 ft. ■ below ☐ above land surface

CASING TYPE(S): ☐ Steel ☐ Plastic ☐ Tile ☐ Other ____

WELLHEAD COMPLETION

Outside: ☐ Well House ☐ Pitless Adapter/Unit ☐ Well Pit ☐ Buried

Inside: ☐ Basement Offset ☐ Well Pit ☐ Buried

Outside: Above Grade Cover Pipe

PROPERTY OWNER'S NAME/COMPANY NAME

Frederick Puzak
PO Box 158
Spring Park MN 55384

WELL OWNER'S NAME/COMPANY NAME

General Mills
(owner's mailing address if different than property owner's address indicated above)
Barr Engineering
7 West 77th Street
Minneapolis MN 55435-4808

CASING(S)

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
2 in.	from 0 to 14 ft.	☐ Yes ■ No	☐ Yes ☐ No ■ Unknown
____ in.	from ____ to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
____ in.	from ____ to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE: Screen from 14 to 24 ft. Open Hole from ____ to ____ ft.

OBSTRUCTIONS: ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ■ No Obstruction

Type of Obstructions (Describe) ____

Obstructions removed? ☐ Yes ☐ No Describe ____

PUMP: Type ____ ☐ Removed ■ Not Present ☐ Other ____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:

■ No Annular Space Exists ☐ Annular space grouted with tremie pipe ☐ Casing Perforation/Removal

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

Type of perforator ____

☐ Other ____

GROUTING MATERIAL(S) (One bag of cement = 94 lbs., one bag of bentonite = 50 lbs.)

Grouting Material: Cement from 0 to 24 ft. ____ yards 3/4 bags

____ from ____ to ____ ft. ____ yards ____ bags

____ from ____ to ____ ft. ____ yards ____ bags

GEOLOGICAL MATERIAL	COLOR	HARDNESS OR FORMATION	FROM	TO
If not known, indicate estimated formation log from nearby well or boring				
Sand			0	4
Peat			4	8
Sand			8	24

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING

OTHER WELLS AND BORINGS: Other unsealed and unused well or boring on property? ☐ Yes ■ No How many? ____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

T.L. Stevens Well Company — Contractor Business Name

27194 — License or Registration No.

Authorized Representative Signature

11/26/03 — Date

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes, Chapter 103I

Minnesota Well and Boring Sealing No. H 217956
Minnesota Unique Well No. or W-series No. (Leave blank if not known)

WELL OR BORING LOCATION
County Name: nepin

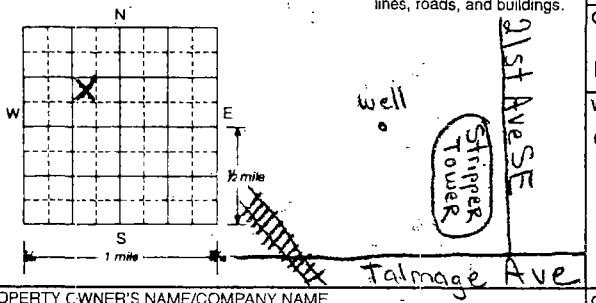
Township Name	Township No.	Range No.	Section No.	Fraction (sm → lg)
s	29	25	19	NW SE NW

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds
Longitude ____ degrees ____ minutes ____ seconds

Numerical Street Address or Fire Number and City of Well or Boring Location

Show exact location of well or boring in section grid with "X" — 106

Sketch map of well or boring location, showing property lines, roads, and buildings.



PROPERTY OWNER'S NAME/COMPANY NAME
BHD Holdings

Property owner's mailing address if different than well location address indicated above
2010 East Hennepin Avenue
Minneapolis MN 55413

WELL OWNER'S NAME/COMPANY NAME
General Mills

Owner's mailing address if different than property owner's address indicated above
Barr Engineering
0 West 77th Street
Minneapolis MN 55435-4803

GEOLOGICAL MATERIAL	COLOR	HARDNESS OR FORMATION	FROM	TO
If not known, indicate estimated formation log from nearby well or boring				
Sand			0	26

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING

IMPORTANT FILE WITH PROPERTY ... 217956

Date Sealed: 11/21/03
Date Well or Boring Constructed: Unknown
Depth Before Sealing: 26 ft.
Original Depth: Unknown ft.

AQUIFER(S)
☒ Single Aquifer ☐ Multiaquifer

WELL/BORING
☐ Water Supply Well ☒ Monit. Well
☐ Env. Bore Hole ☐ Other ____

STATIC WATER LEVEL
☒ Measured ☐ Estimated
23 ft. ☒ below ☐ above land surface

CASING TYPE(S)
☒ Steel ☐ Plastic ☐ Tile ☐ Other ____

WELLHEAD COMPLETION
Outside: ☐ Well House ☐ Pitless Adapter/Unit ☐ Well Pit ☐ Buried
Inside: ☐ Basement Offset ☐ Well Pit ☐ Buried
Outside: Above grade

CASING(S)

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
2 in. from 0 to 16 ft.		☐ Yes ☒ No	☐ Yes ☐ No ☒ Unknow
____ in. from ____ to ____ ft.		☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
____ in. from ____ to ____ ft.		☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknow

SCREEN/OPEN HOLE
Screen from 16 to 26 ft. Open Hole from ____ to ____ ft.

OBSTRUCTIONS
☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☒ No Obstruction
Type of Obstructions (Describe) ____
Obstructions removed? ☐ Yes ☐ No Describe ____

PUMP
Type ____
☐ Removed ☒ Not Present ☐ Other ____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:
☒ No Annular Space Exists ☐ Annular space grouted with tremie pipe ☐ Casing Perforation/Removal
____ in. from ____ to ____ ft. ☐ Perforated ☐ Remove
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
Type of perforator ____
☐ Other ____

GROUTING MATERIAL(S) (One bag of cement = 94 lbs., one bag of bentonite = 50 lbs.)
Grouting Material: Cement from 0 to 26 ft. ____ yards 1/4 bags
____ from ____ to ____ ft ____ yards ____ bags
____ from ____ to ____ ft ____ yards ____ bags

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on property? ☐ Yes ☒ No How many? ____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION
This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

T.L. Stevens Well Company — 27194
Contractor Business Name — *License or Registration No.*

Tom Stevens — 11/26/03
Authorized Representative Signature — *Date*

Joe Stevens

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING SEALING RECORD

Minnesota Statutes, Chapter 103I

Minnesota Well and Boring Sealing No. H 217957

Minnesota Unique Well No. or W-series No. (Leave blank if not known)

WELL OR BORING LOCATION

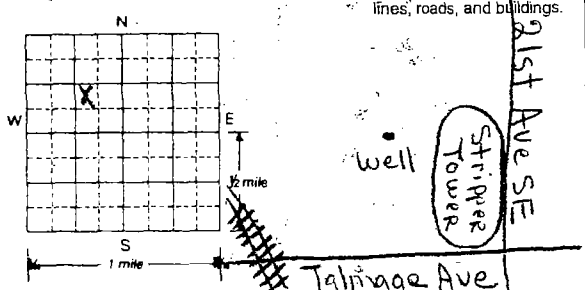
County Name: Hennepin

Township Name	Township No.	Range No.	Section No.	Fraction (sm → lg)
S	29	23	19	NW SE NW

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds; Longitude ____ degrees ____ minutes ____ seconds

Numerical Street Address or Fire Number and City of Well or Boring Location
2010 East Hennepin Avenue
Minneapolis MN 55413

Show exact location of well or boring in section grid with "X"



PROPERTY OWNER'S NAME/COMPANY NAME
HBD Holdings

Property owner's mailing address if different than well location address indicated above
2010 East Hennepin Avenue
Minneapolis MN 55413

WELL OWNER'S NAME/COMPANY NAME
General Mills

Owner's mailing address if different than property owner's address indicated above
Barr Engineering
4700 West 77th Street
Minneapolis MN 55435-4803

GEOLOGICAL MATERIAL	COLOR	HARDNESS OR FORMATION	FROM	TO
If not known, indicate estimated formation log from nearby well or boring				
Sand			0	36

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING.

IMPORTANT-FILE WITH PROPERTY | H 217957

Date Sealed: 11/21/03

Date Well or Boring Constructed: Unknown

Depth Before Sealing: 38 ft.

Original Depth: Unknown ft.

AQUIFER(S): ■ Single Aquifer ☐ Multiaquifer

WELL/BORING: ☐ Water Supply Well ■ Monit. Well ☐ Env. Bore Hole ☐ Other

STATIC WATER LEVEL: ■ Measured ☐ Estimated 22 ft. ■ below ☐ above land surface

CASING TYPE(S): ■ Steel ☐ Plastic ☐ Tile ☐ Other

WELLHEAD COMPLETION

Outside: ☐ Well House ☐ Pitless Adapter/Unit ☐ Well Pit ☐ Buried

Inside: ☐ Basement Offset ☐ Well Pit ☐ Buried

Outside: Above grade cover pipe

CASING(S)

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
6 in.	from 0 to 28 ft.	☐ Yes ■ No	☐ Yes ☐ No ■ Unknown
____ in.	from ____ to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
____ in.	from ____ to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE: Screen from 28 to 38 ft. Open Hole from ____ to ____ ft.

OBSTRUCTIONS: ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ■ No Obstruction

Type of Obstructions (Describe) ____

Obstructions removed? ☐ Yes ☐ No Describe ____

PUMP

Type ____

☐ Removed ■ Not Present ☐ Other ____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:

■ No Annular Space Exists ☐ Annular space grouted with tremie pipe ☐ Casing Perforation/Removal

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

Type of perforator ____

☐ Other ____

GROUTING MATERIAL(S) (One bag of cement = 94 lbs., one bag of bentonite = 50 lbs.)

Grouting Material: Cement from ____ to ____ ft. ____ yards 6.5 bags

____ from ____ to ____ ft. ____ yards ____ bags

____ from ____ to ____ ft. ____ yards ____ bags

OTHER WELLS AND BORINGS

Other unsealed and unused well or boring on property? ☐ Yes ■ No How many? ____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

T.L. Stevens Well Company — *Contractor Business Name*

27194 — *License or Registration No.*

Authorized Representative Signature

11/26/03 — *Date*

Joe Stevens

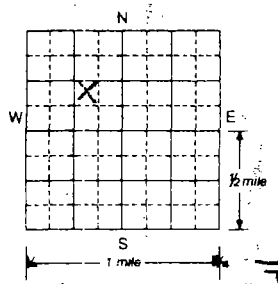
MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes, Chapter 103I

Minnesota Well and Boring Sealing No. H 217961
Minnesota Unique Well No. or W-series No. (Leave blank if not known)

WELL OR BORING LOCATION
County Name: Hennepin
Township Name: Is | Township No.: 29 | Range No.: 23 | Section No.: 19 | Fraction (sm → lg): NW SE NW
GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds; Longitude ____ degrees ____ minutes ____ seconds

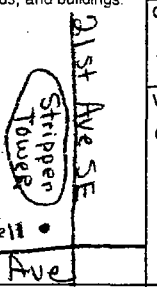
Numerical Street Address or Fire Number and City of Well or Boring Location
2010 East Hennepin Avenue
Minneapolis MN 55413

Show exact location of well or boring in section grid with "X"



108

Sketch map of well or boring location, showing property lines, roads, and buildings.



PROPERTY OWNER'S NAME/COMPANY NAME
BBD Holdings
Property owner's mailing address if different than well location address indicated above
2010 East Hennepin Avenue
Minneapolis MN 55413

WELL OWNER'S NAME/COMPANY NAME
General Mills
Owner's mailing address if different than property owner's address indicated above
Barr Engineering
4700 West 77th Street
Minneapolis MN 55435-4803

GEOLOGICAL MATERIAL	COLOR	HARDNESS OR FORMATION	FROM	TO
If not known, indicate estimated formation log from nearby well or boring				

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING

IMPORTANT-FILE WITH PROPERTY ☐ 217961

Date Sealed: 11/21/03
Date Well or Boring Constructed: Unknown
Depth Before Sealing: 56 ft.
Original Depth: Unknown ft.

AQUIFER(S)
■ Single Aquifer ☐ Multiaquifer

WELL/BORING
☐ Water Supply Well ■ Monit. Well
☐ Env. Bore Hole ☐ Other

STATIC WATER LEVEL
■ Measured ☐ Estimated
27 ft. ■ below ☐ above land surface

CASING TYPE(S)
☐ Steel ☐ Plastic ☒ Tile ☐ Other

WELLHEAD COMPLETION
Outside: ☐ Well House ■ Pitless Adapter/Unit ☐ Well Pit ☐ Buried
Inside: ☐ Basement Offset ☐ Well Pit ☐ Buried

CASING(S)

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
6 in. from 0 to 50 ft.		☐ Yes ■ No	☐ Yes ☐ No ■ Unknown
____ in. from ____ to ____ ft.		☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
____ in. from ____ to ____ ft.		☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE
Screen from ____ to ____ ft. Open Hole from 50 to 56 ft.

OBSTRUCTIONS
☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ■ No Obstruction
Type of Obstructions (Describe)
Obstructions removed? ☐ Yes ☐ No Describe

PUMP
Type Submersible
■ Removed ☐ Not Present ☐ Other

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:
■ No Annular Space Exists ☐ Annular space grouted with tremie pipe ☐ Casing Perforation/Removal
____ in. from ____ to ____ ft. ☐ Perforated ☐ Remove
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
Type of perforator
☐ Other

GROUTING MATERIAL(S) (One bag of cement = 94 lbs., one bag of bentonite = 50 lbs.)
Grouting Material: Cement from 0 to 56 ft. ____ yards 8 bags
____ from ____ to ____ ft. ____ yards ____ bags
____ from ____ to ____ ft. ____ yards ____ bags

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on property? ☐ Yes ■ No How many?

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION
This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

T.L. Stevens Well Company — 27194
Contractor Business Name — *License or Registration No.*

Authorized Representative Signature — 11/26/03 *Date*

Joe Stevens